SPX

COMMUNICATION TECHNOLOGY

RFQ Response
RFQ # EBA343

Buyer: Shelly Murray
Bid Opening: 5/18/2011
Bid Opening Time:
1:30PM

Channel 29 Digital Television System

State of West Virginia

WSWP Welch, WV

SPX

COMMUNICATION TECHNOLOGY

May 4, 2011

Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, WV 25305-0130

Dear Ms. Murray,

Thank you for the opportunity to propose a solution for the TV project for WSWP. We are pleased to offer the following proposal for your review.

Since our inception in 1942, SPX Communication Technology (Dielectric Communications) has considered itself a solution-oriented engineering company, with pride in our depth of scientific knowledge, and our experience, both in TV and FM.

We are the nation's largest manufacturer of broadcast antennas, transmission line, and RF systems equipment, with over 60 years of continuous service to the broadcast community. We have over 80 Staff Engineers with over 1500 years of combined experience to their credit. Our entire company is committed to providing you the best in broadcast systems.

We look forward to this exciting project. A point to point response to Sections 1-5 is included. We have also included our standard Terms and Conditions of Sale including Warranty, which would apply to the extent they are not in conflict with the bid documents. Shipment is quoted as 45-60 days ARO, however we may be able to ship sooner depending upon the timing of the order. We are available to answer any questions or providing clarifications should they be required.

Kind regards,

David Stout

David Stout
SPX Communication Technology
Quotes Representative
1-800-341-9678 Ext.8137

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
EBA343	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
SHELLY MURRAY
304-558-8801

VENDOR
*C20082552 01 800-341-9678
DIELECTRIC COMMUNICATIONS
PO BOX 949

RAYMOND ME 04071

SHIP TO
EDUCATIONAL BROADCASTING
AUTHORITY
600 CAPITOL STREET

CHARLESTON, WV
25301-1223 304-558-3400

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/14/2011				

BID OPENING DATE: 05/18/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA EDUCATIONAL BROADCASTING AUTHORITY, IS SOLICITING BIDS FOR A ONE (1) CHANNEL 29 DIGITAL TELEVISION SYSTEM PER THE ATTACHED SPECIFICATIONS.

TECHNICAL QUESTIONS MUST BE SUBMITTED IN WRITING TO SHELLY MURRAY IN THE WEST VIRGINIA PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN AT THE TOP OF THIS RFQ, VIA FAX AT 304-558-4115, OR VIA E-MAIL AT SHELLY.L.MURRAY@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS IS 05/02/2011 AT THE CLOSE OF BUSINESS. ALL TECHNICAL QUESTIONS RECEIVED, IF ANY, WILL BE ADDRESSED BY ADDENDUM AFTER THE DEADLINE.

0001	1	LS		840-10		

ANTENNAS AND ACCESSORIES, TELEVISION

CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE COMMODITIES AND/OR SERVICES SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HEREIN.

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.

THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
David M. Stout	207-655-8137	5-10-11

TITLE	FEIN	
Quotes Rep.	38-1016240	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
EBA343	2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
SHELLY MURRAY
304-558-8801

VENDOR
*C20082552 01 800-341-9678
DIELECTRIC COMMUNICATIONS
PO BOX 949

RAYMOND ME 04071

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CHARLESTON, WV
25301-1223 304-558-3400

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/14/2011				

BID OPENING DATE: 05/18/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4(F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.

NOTICE

A SIGNED BID MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:

SEALED BID

BUYER: SHELLY MURRAY

RFQ. NO.: EBA343

BID OPENING DATE: 05/18/2011

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
DMS		

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER	PAGE
EBA343	3

ADDRESS CORRESPONDENCE TO ATTENTION OF:
SHELLY MURRAY
304-558-8801

VENDOR
*C20082552 01 800-341-9678
DIELECTRIC COMMUNICATIONS
PO BOX 949

RAYMOND ME 04071

SHIP TO
EDUCATIONAL BROADCASTING
AUTHORITY
600 CAPITOL STREET

CHARLESTON, WV
25301-1223 304-558-3400

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
04/14/2011				

BID OPENING DATE: 05/18/2011 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
	BID OPENING TIME:			1:30 PM		
	PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: ---------- 207-655-8173 ----------					
	CONTACT PERSON (PLEASE PRINT CLEARLY): ---------- David Stout ----------					
	****** THIS IS THE END OF RFQ EBA343 ****** TOTAL:					

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
DMS		

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)

1. Awards will be made in the best interest of the State of West Virginia.

2. The State may accept or reject in part, or in whole, any bid.

3. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required $125 fee.

4. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods this Purchase Order/Contract becomes void and of no effect after June 30.

5. Payment may only be made after the delivery and acceptance of goods or services.

6. Interest may be paid for late payment in accordance with the ***West Virginia Code***.

7. Vendor preference will be granted upon written request in accordance with the ***West Virginia Code***.

8. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

9. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.

10. The laws of the State of West Virginia and the ***Legislative Rules*** of the Purchasing Division shall govern the purchasing process.

11. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.

12. BANKRUPTCY: In the event the vendor/contractor files for bankruptcy protection, the State may deem this contract null and void, and terminate such contract without further order.

13. HIPAA BUSINESS ASSOCIATE ADDENDUM: The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, is available online at **www.state.wv.us/admin/purchase/vrc/hipaa.htm** and is hereby made part of the agreement. Provided that the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

14. CONFIDENTIALITY: The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/noticeConfidentiality.pdf.

15. LICENSING: Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, and the West Virginia Insurance Commission. The vendor must provide all necessary releases to obtain information to enable the director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

16. ANTITRUST: In submitting a bid to any agency for the State of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the State of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, or person or entity submitting a bid for the same material, supplies, equipment or services and is in all respects fair and without collusion or Fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division. Complete all sections of the quotation form.

2. Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.

3. Unit prices shall prevail in case of discrepancy. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.

4. All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130

5. Communication during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited (W.Va. C.S.R. §148-1-6.6).

Request for Quotations
EBA343

Digital television antenna system and associated hardware

The West Virginia Educational Broadcasting Authority (WVEBA) is conducting a request for quotations for one (1) channel 29 digital television antenna system and associated hardware according to the enclosed specifications, a SPX/Dielectric TLP-12A, or equivalent.

WVEBA operates a statewide network of television transmitters. This project will add a digital translator to the WSWP transmitter at Welch, WV. Antenna pattern and power level are addressed below. The bid shall be awarded to a single vendor.

Respondents to this request must have manufactured low power UHF antennas for a minimum of ten years.

1. General Mechanical Specifications

1.1. All structural elements shall be designed and fabricated in accordance with TIA/EIA standard RS-222-F, Structural Standards for Steel Antenna, Towers, and Supporting Structures.
1.2. All hardware shall be constructed of non-ferrous material (brass, copper, stainless steel, etc.) or be galvanized.
  1.2.1. Steel elements shall be hot-dip galvanized in accordance with ASTM A123
  1.2.2. Zinc coating shall be applied with a minimum thickness of 0.002 inches (0.05 mm)
  1.2.3. Antenna shall be structural strength, light weight aluminum manufacture. Refer to 1.1 and 1.6.
  1.2.4. Bidders are requested to state materials used in antenna manufacture.
1.3. Vendor shall provide mounting adapters for the antenna.
  1.3.1. The antenna shall be side mounted
  1.3.2. Tower is designed with angle steel, straight legs, and three faces approximately 42 inches each, mounting adaptors shall be constructed accordingly to side mount the antenna.
1.4. The antenna, transmission line, and connectors shall be rated for at least 3kW average power.
1.5. All materials shall be new, no surplus or refurbished components will be allowed
1.6. Antenna dimensions shall not exceed length of 23ft, weight 160 lb, and windload CaAc 15.4 sq ft

2. Transmission Line

2.1. Vendor shall provide transmission line
  2.1.1. Transmission line shall be 1 5/8" air dielectric flexible coax (Dielectric Flexline or equal)
  2.1.2. Impedance shall be 50 Ohms
2.2. Vendor shall provide connectors for the transmission line
  2.2.1. Connector size (transmitter end) shall be 1-5/8" EIA, Antenna connector size shall be 1-5/8" EIA flange.
  2.2.2. The line shall be shipped with one flange connector (the antenna end) attached from the factory, and the other end to be attached in the field

2.3. The line shall be pressurized
2.3.1. All necessary gas barriers and connectors shall be provided
2.4. Vendor shall provide all hangers, clamps, grounding kits, hoisting grips, and all other hardware necessary for installation.
2.4.1. A dehydrator shall be provided with the following specifications:

Normal Capacity: 200 SCFD (160 SCFD @ 50Hz)
Maximum Capacity: 300 SCFD (240 SCFD @ 50 Hz)
Dew Point: -40 degrees F (-40 degrees C)
Operating Voltage: 115V/60-50Hz
Operating Amps: 2.0 Amps (115V)
Circuit Protection: (manual reset) 5 Amp (115V)
Compressor: 1/8 H.P.
Air Outlet: ¼" NPT Fitting
Dielectric Technologies, SPX Model 300TLS or equivalent.

3. Antenna

3.1. The antenna shall be side mounted
3.2. The antenna shall be of structural strength light weight aluminum manufacture
3.3. The antenna shall be equipped with a radome, heaters for anti-icing are not acceptable
3.4. The UHF antenna shall be a horizontally polarized, omni directional, side mounted slotted cylinder type designed for digital channel 29.
3.5. There shall be no external radiating elements which would be susceptible to icing affecting both antenna patterns and wind load
3.6. Vendor shall certify the pattern and gain for the antenna.
3.7. Antenna shall have a main lobe power gain of 12.0 (10.79 dB) at channel 29 with smooth elevation pattern including null fill (see Exhibit E2). Elevation and azimuth patterns shall be supplied with the bid.
3.8. The antenna input shall be 1-5/8" EIA flange.
3.9. Antenna beam tilt shall be 1.0 degree.
3.10. Input Power handling capabilities of the antenna shall be 3kW average or greater.
3.11. Antenna dimensions shall not exceed length of 23ft, weight 160 lb, and windload CaAc 15.4 sq ft
3.12. During factory assembly of the antenna the antenna elevation patterns and gain shall be determined through anechoic chamber or scaled field measurement techniques. For the purposes of pattern verification, filing, and record keeping, measurement results shall be supplied before antenna shipment. WVEBA reserves the right to request the vendor to make modifications to the antenna to match specifications.
3.13. Antenna VSWR shall not exceed 1.10:1
3.13.1. Field tuning of the antenna will not be allowed

4. Specific Site Requirements

4.1. Welch, WV
4.1.1. The transmitter shall operate on digital channel 29
4.1.2. Transmitter power output (TPO) shall be 1706 Watts average measured at the output of the mask filter
4.1.3. The antenna shall exhibit a peak gain of 12 (10.79 dB)
4.1.4. ERP for the site shall be 15kW
4.1.5. The transmission line length shall be 300 feet

4.1.6. Transmission line run shall be approximately 260 feet vertical and 40 feet horizontal

4.1.7. The connection to the transmitter shall be 1-5/8" EIA flange

4.2. Directional tabulation

4.2.1. Antenna shall be omni directional

5. Warranty

5.1. All products shall be warranted for a minimum of one year.

5.2. Bidders shall state their warranty policy.

6. Support

6.1. Vendor shall offer toll free technical support for the antenna for a minimum of five years

7. Engineering Specifications Overview Exhibit E1

8. Coverage Contour Map Exhibit E3

9. Options

9.1. The following options will not be part of the winning bid decision making. The options may or may not be purchased.

9.1.1. Vendor is requested to perform an electrical system check of the antenna and transmission line after installation to verify that the system was installed properly. The pricing for this option shall be listed as an item separate from the main antenna system pricing.

10. Shipping and delivery

10.1. Vendor shall provide shipping

10.2. Shipping charges shall be included in the equipment price

10.3. Delivery shall be FOB Destination

10.4. The receiving facility shall be WSWP studios

WV Educational Broadcasting Authority
124 Industrial Park Road
Beaver, WV 25813
Attn: Jeremy Scott
304-254-7865

10.5. Shipper shall provide 24 hours notice to arrange off-loading

10.6. Shipper shall provide off-loading equipment and be responsible for off-loading antenna and associated hardware.

11. Invoicing and Billing

11.1. Invoices shall be itemized.

11.2. The billing address is:

Tammy Treadway
WV Educational Broadcasting Authority
PO Box 9004
Beckley, WV 25802
304-254-7840

****Exhibit E1****

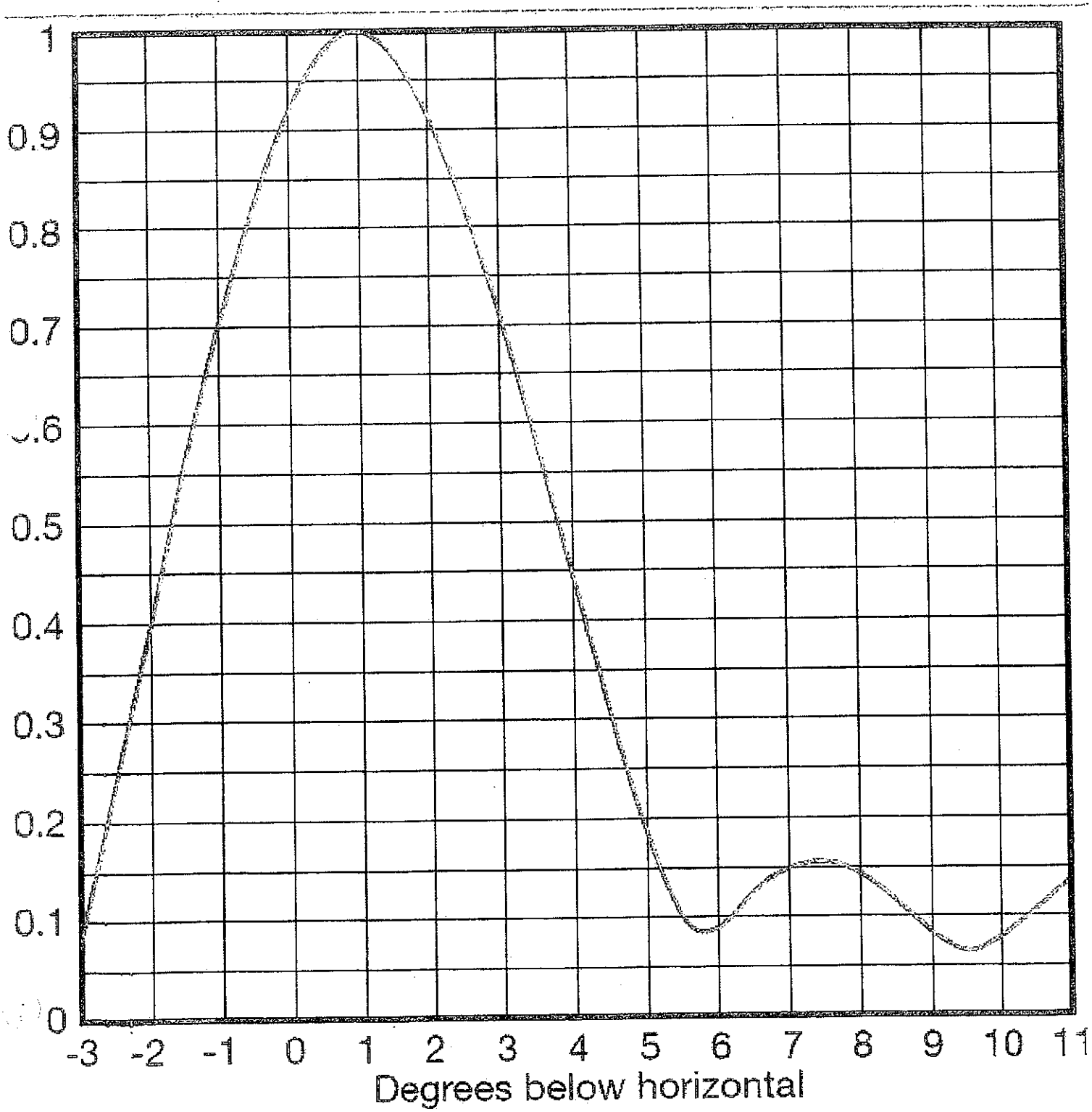
W29DP-D

Welch, West Virginia

Engineering Specifications

A.	Transmitter Site (NAD 27)		
		North Latitude	37° 25' 52.1"
		West Longitude	81° 35' 35.2"
	Tower Registration Number		1200717
	FAA Study Number:		99-AEA-1735-OE
B.	Proposed Facility		
	DTV Channel		
		Number	29
		Frequency	560 - 566MHZ
		Emission Mask	Stringent
C.	Elevations		
	Height of Site Above Mean Sea Level (AMSL)		620.2 m
	Overall height of Structure above Ground (including all appurtenances)		88.0 m
	Overall Height of Structure Above Mean Sea Level (including all appurtenances)		708.2 m
	Effective Height of Antenna Above Ground		75.0 m
	Effective Height of Antenna Above Average Terrain		140.5 m
	Effective Height of Antenna Above Mean Sea Level		695.2 m
D.	Antenna Parameters: -Horizontal Polarization		
	Maximum Antenna Gain in Beam Maximum		10.79 dB
	Maximum Antenna Gain in Horizontal Plane		10.04 dB
	Maximum Effective Radiated Power		11.76 dBk
	In Beam Maximum		15 KW
	Average TPO Required		1.706 KW
	Average TPO Required		2.32 dBk

Exhibit E2


1
0.9
0.8
0.7
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0.5
0.4
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0.2
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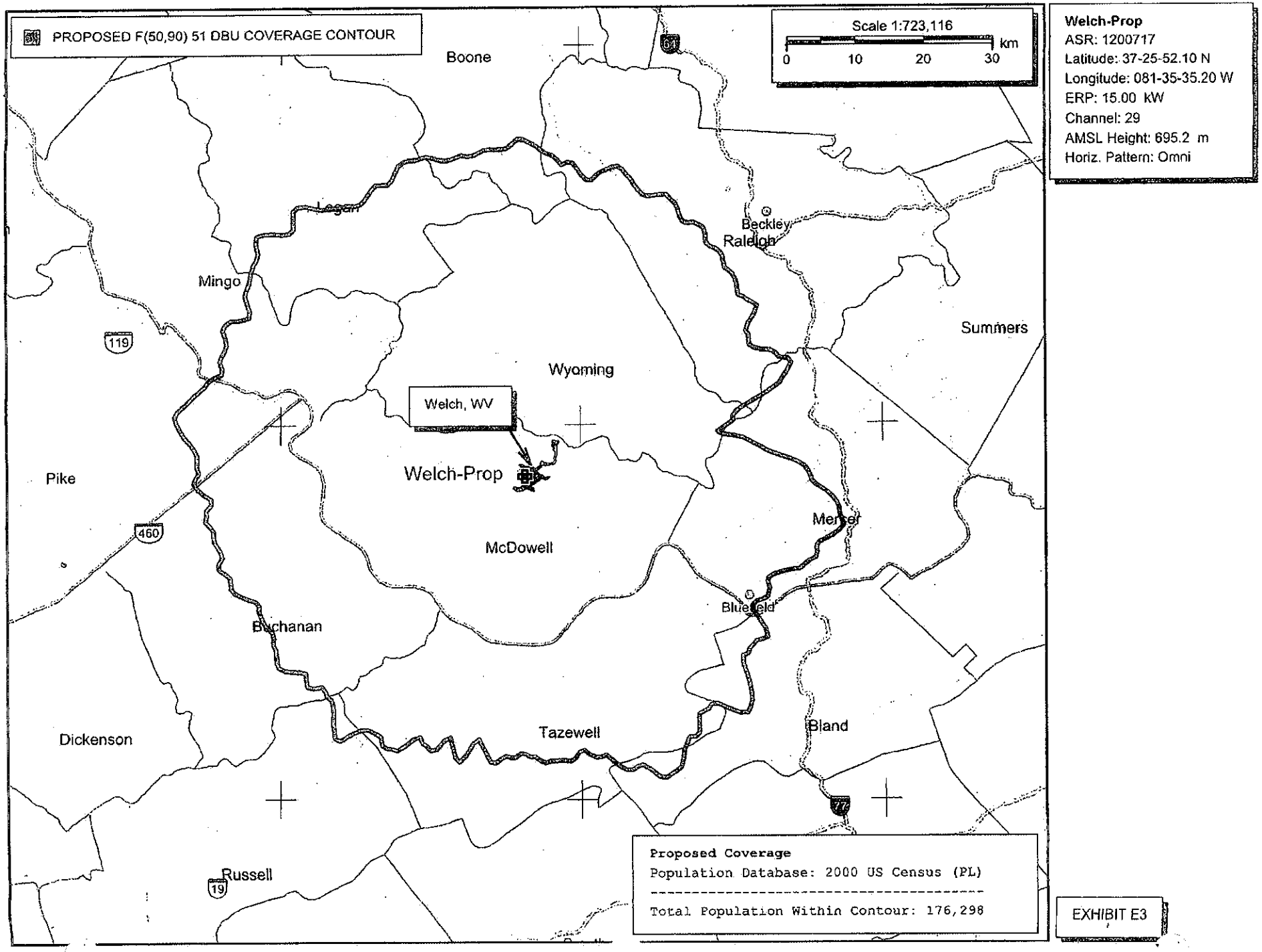
Degrees below horizontal


PROPOSED F(50,90) 51 DBU COVERAGE CONTOUR
Scale 1:723,116
km
0
10
20
30
Welch-Prop
ASR: 1200717
Latitude: 37-25-52.10 N
Longitude: 081-35-35.20 W
ERP: 15.00 kW
Channel: 29
AMSL Height: 695.2 m
Horiz. Pattern: Omni
Boone
Logan
Mingo
Beckley
Raleigh
Summers
Wyoming
Welch, WV
Welch-Prop
Pike
McDowell
Mercer
Bluefield
Buchanan
Tazewell
Bland
Dickenson
Russell
119
460
61
77
19
Proposed Coverage
Population Database: 2000 US Census (PL)
Total Population Within Contour: 176,298
EXHIBIT E3

EBA343-WV EBA PRICING PAGE

Digital television antenna system and associated hardware. Shipping charges shall be included in product pricing.

ITEM NUMBER	QUANTITY	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	1	Antenna & Accessories		$17,995 (Includes Shipping)
2	1	Miscellaneous Hardware(nuts,bolts,washers,etc.)		N/A
3	1	Mounting Adapters		$4,309
4	1	Dehydrator		$1,674.31
5	1	Transmission line & Connectors		$6,379.74
TOTAL				$30,358.05

The following option WILL NOT be part of the winning bid decision making. These options MAY or MAY NOT be purchased individually.				
1	1	Electrical system check of the antenna and transmission line after installation to verify that the system was installed properly.		$5,500
TOTAL				$5,500

David M. Stout 5-10-11

Signature of Vendor Representative Submitting Bid Date

RFQ No. EBA343

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:
"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (***West Virginia Code*** §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: SPX Communication Technology

Authorized Signature: David M. Stout Date: 5-4-11

State of MAINE

County of Cumberland, to-wit:

Taken, subscribed, and sworn to before me this 4 day of May, 2011.

My Commission expires September 16, 2011.

AFFIX SEAL HERE

NOTARY PUBLIC Faith E Duplessie

FAITH E. DUPLESSIE
Notary Public, Maine
My Commission Expires September 16, 2011

Rev. 09/08

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**
____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% resident vendor preference for the reason checked:**
____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% resident vendor preference for the reason checked:**
____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**
____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder:_____ **Signed:**_____

Date:_____ **Title:**_____

**Check any combination of preference consideration(s) indicated above, which you are entitled to receive.*

RFQ # EBA343
West Virginia Educational Broadcasting Authority
Ch. 29 Welch, WV

SPX Communications Technology Point-by-Point Response

Section 1. General Mechanical Specifications

1.1 Comply
1.2 Comply
1.2.1 Comply
1.2.2 Comply as appropriate for the type of product to be provided.
1.2.3 Comply
1.2.4 Comply; Antenna outer is made from 6061-T6 Aluminum, Inner conductor is copper, Centering pins are steatite with Teflon caps, Spoke shorts are brass & bronze and the radomes are made from polycarbonate.
1.3 Comply
1.3.1 Comply
1.3.2 Comply
1.4 Comply. Specifications within.
1.5 Comply
1.6 Comply

Section 2. Transmission Line

2.1 Comply
2.1.1 Comply
2.2 Comply
2.2.1 Comply
2.2.2 Comply
2.3 Comply
2.3.1 Comply
2.4 Comply
2.4.1 Comply

Section 3. Antenna Gain and Pattern

3.1 Comply
3.2 Comply
3.3 Comply. A FULL Radome is included for weather protection, not simply a slot cover type.
3.4 Comply
3.5 Comply
3.5.1 Comply
3.6 Comply. Specifications within.
3.7 Comply. Specifications within.
3.8 Comply
3.9 Comply
3.10 Comply
3.11 Comply
3.12 Comply
3.13 Comply
3.13.1 Comply

Section 4. Specific Site Requirements

4.1 Understood
4.1.1 Understood
4.1.2 Understood
4.1.3 Comply
4.1.4 Understood
4.1.5 Comply
4.1.6 Understood
4.1.7 Understood
4.2 Understood
4.2.1 Comply

Section 5. Warranty

5.1 Comply
5.2 Comply. Warranty attached.

Section 6. Support

6.1 Comply

Section 7. Engineering Specifications Overview Exhibit E1. Understood

Section 8. Coverage Contour Map Exhibit E3. Understood

Section 9 Options.

9.1 Understood
9.1.1 Comply

Section 10. Shipping and delivery

10.1 Understood
10.2 Comply
10.3 Comply
10.4 Understood
10.5 Understood
10.6 Understood This item will be included, but an optional deduct will be shown. Normally the installation crew will offload as part of the installation. The optional deduct can apply should the installer perform this function for WVEBA.

Section 11. Invoicing and Billing

11.1 Understood
11.2 Understood

SPX
COMMUNICATION TECHNOLOGY

22 Tower Road
Raymond, ME 04071
Phone: 207-655-4555
Fax: 207-655-8173
Internet: www.spxcomtech.com

FLASH TECHNOLOGY
AN SPX DIVISION

Quotation

Customer
STATE OF WEST VIRGINIA
EDUCATIONAL BROADCASTING AUTH
600 CAPITOL STREET
CHARLESTON WV 25301-1223
USA

Ship-To-Party
WV Educational Broadcasting Authority
Attn: Jeremy Scott 304-254-7865
124 Industrial Park Road
Beaver WV 25813
USA

Information	
Quote Number	2024112
Quote Date	05/02/2011
Customer No.	110148
Currency	USD
Validity Start Date	05/02/2011
Validity End Date	07/02/2011

Header Information

Terms of payment: **Net due in 30 days**
**** PAYMENT TERMS ARE SUBJECT TO CHANGE PENDING CREDIT APPROVAL ****
Incoterms: **FOB DESTINATION PPD**
LEAD TIME:45 TO 60 DAYS ARO FROM OUR FACTORY.

Item	Material Number / Cat. Num / Description	Quantity	Unit Price	Amount
10	11000000077/ ANT TLP-12A-R CH29 WSWP	1 EA	15,845.00	15,845.00
	SPECIFICATIONS PER TECHNICAL PROPOSAL C- HORIZONTALLY POLARIZED, OMNI DIRECTIONAL, SIDE MOUNTED SLOTTED CYLINDER TYPE DESIGNED FOR DIGITAL CHANNEL 29			
20	11000000077/ MOUNTS CUSTOM TLP-12A	1 EA	4,309.00	4,309.00
	ANGLED LEG TOWER			
30	RFLEX/ FLEX LINE RUN	1 EA		
	With the following configuration FACTORY INSTALL BOT CONN?: NO SELECT TOP CONNECTOR: 1 5/8" MALE GPASS CONN EIA 1" SELECT BOTTOM CONNECTOR: 1 5/8" MALE GSTOP CONN EIA 1" ENTER VERTICAL LENGTH: 260 Foot ENTER HORIZONTAL LENGTH: 40 Foot SELECT CHANNEL: Channel 29 ENTER DESIRED FREQUENCY: 563.0 MHz ARE MOUNTING REQMTS KNOWN?: NO ATTENUATION (dB): 1.53 dB EFFICIENCY (%): 70.32 % SYSTEM MAX AVG PWR (KW): 6.6 KW			
40	11000006463/ FLEXLINE 1-50 ANDREW HJ7-50A	300 FT	16.52	4,956.00
	FL-46 1 5/8" AIR FLEXLINE, 50 OHM TRANSMISSION LINE			
50	11000002341/ CONN 1 5/8 EIA GAS PASS	1 EA	257.63	257.63
	46-EM158P 1 5/8" EIA MALE CONNECTOR			
60	11000002342/ FLEXLINE CONN 1-50 GAS BLOCK	1 EA	297.60	297.60
	46-EM158B 1 5/8" EIA MALE CONNECTOR			

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SPX
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FLASH TECHNOLOGY
AN SPX DIVISION

Quotation

Quote Number 2024112 **Quote Date** 05/02/2011 **Customer No.** 110148

Item	Material Number / Cat. Num / Description	Quantity	Unit Price	Amount
70	11000006622/ FLEXLINE CONN INSTALL 7/8 & 1 5/8" AIR	1 EA	24.50	24.50
80	11000002346/ BUTTERFLY HANGER 1 5/8 FLEX 10PK	10 EA	22.50	225.00
	HBF-46 1 5/8" FLEXLINE			
90	11000002446/ FLEXLINE RMA6 10PK	9 EA	30.36	273.24
	RMA6: ROUND MEMBER ADAPTER FOR 6-8" DIA LEG/POLE **NOTE** ASSUMED LEG DIAMETER, MAKE CERTAIN OF CORRECT DIAMETER FOR LEGS BEFORE ORDERING THE ROUND MEMBER ADAPTERS. MOST TOWERS WILL HAVE VARIOUS SIZES AT DIFFERENT LEVELS OF TOWER			
100	11000002449/ FLEXLINE HARDWARE KIT 3/8 X 1" 10PK	2 EA	7.55	15.10
	HW1:3/8"X 1 BOLT KIT FOR HANGER ATTACHMENT			
110	11000002345/ FLEXLINE WALL/ROOF FEED THRU FL-46	1 EA	62.19	62.19
	WFT-46-1E 1 5/8" FLEXLINE SINGLE PORT			
120	11000002344/ FLEXLINE HOISTING GRIP FL-46	2 EA	28.88	57.76
	HSTG-46 1 5/8" FLEXLINE			
130	11000002343/ FLEXLINE GROUNDING KIT FL-46	4 EA	21.77	87.08
	GRD-46 1 5/8" FLEXLINE			
140	11000002385/ FLEXLINE WEATHERPROOF KIT - 221213	1 EA	18.32	18.32
	WPKIT: CONNECTOR WEATHERPROOF KIT			
150	R96604/ GASSING KIT W/1/8 BSPT/NPT AD	1 EA	105.32	105.32
160	R66788 / 300TLS 115 / DEHYDRATOR 300TLS 115 VAC	1 EA	1,674.31	1,674.31
170	RFREIGHT/ FREIGHT, SHIPPING, AND HANDLING	1 EA	2,150.00	2,150.00
	Note: The quoted price is subject to change to reflect increases in fuel costs, shipper surcharges, etc. TO PROTECT THE MATERIALS FROM DAMAGE THIS FREIGHT QUOTE INCLUDES A DEDICATED TRUCK SHIPPING FROM RAYMOND ME 04071 DIRECTLY TO 124 INDUSTRIAL PARK ROAD IN BEAVER WV 25813. ALSO INCLUDES OFF-LOADING AND ANY EQUIPMENT REQUIRED TO PERFORM THE OFF-LOADING. IF THE CUSTOMER OR RIGGERS PERFORM THE OFF-LOADING, CUSTOMER MAY DEDUCT $450.00 FROM THE TOTAL NET PRICE OF THE QUOTE.			
180	/ OPTIONAL SYSTEM CHECKOUT	0.000		

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FLASH TECHNOLOGY
AN SPX DIVISION

Quotation

Quote Number 2024112 **Quote Date** 05/02/2011 **Customer No.** 110148

Item	Material Number / Cat. Num / Description	Quantity	Unit Price	Amount
	VSWR Checkout Services after installation. Include one man for one day on site. Tests to be made from a convenient location within transmitter room. Estimated Net price of $5,500. To be billed at $1,600/day plus (expenses x 1.15). CUSTOMER TO SIGN AND DATE THIS LINE ITEM TO ACCEPT THIS OPTION AND ADD TO TOTAL PACKAGE PRICE. Please call (3) days in advance to request services.			
			Items total:	30,358.05
			Total Tax	
			Final amount:	30,358.05

ACCEPTANCE:

By execution below, or by sending a Purchase Order referencing this proposal, the undersigned accepts this proposal to furnish equipment and services on this schedule subject to the Terms and Conditions of Sale for Broadcast, Lighting, Monitoring and Related Products and Services (Rev P)("Dielectric Terms") attached hereto and/or incorporated by reference herein, and authorizes Dielectric to proceed with the procurement and fabrication of this equipment. Your acceptance of this proposal is conditioned upon your acceptance of the Dielectric Terms and your agreement to be bound by and comply with the Dielectric Terms. Dielectric's failure to object to provisions contained in any Purchase Order or other document from you shall not be construed as a waiver by Dielectric of the Dielectric Terms or an acceptance of any such provisions. Any conflicting or additional terms or conditions set forth in a Purchase Order or other document from you are not binding upon Dielectric, and Dielectric hereby expressly objects thereto.

Signature _____ Date _____

Requested Ship Date: _____

This requested ship date is subject to review by Dielectric. If Dielectric can not meet the requested ship date, you will be contacted to work out a mutually acceptable shipment date. Dielectric requires that the customer take ownership of the product no later than 14 calendar days after the agreed-upon ship date.

SPX

COMMUNICATION TECHNOLOGY

Terms and Conditions of Sale for Broadcast, Lighting, Monitoring and Related Products Rev P (Products)

General Terms and Conditions

1. **DEFINITIONS.**
   a) *Terms* means these Terms and Conditions of Sale for Broadcast, Lighting, Monitoring and Related Products;
   b) *Proposal* means the proposal or quotation document provided to Customer by SPX into which these Terms are incorporated by reference;
   c) *Customer* means the purchaser to whom the Proposal is addressed and to whom these Terms apply, including, where applicable, all individual and/or corporate guarantors;
   d) *SPX* means SPX Communication Technology (a division of SPX Corporation);
   e) *Custom-built* means equipment set forth in the Proposal which is built by SPX to Customer's specifications;
   f) *Product* means the applicable broadcast, lighting, monitoring and related equipment to be sold by SPX to Customer as set forth in the Proposal;
   g) *Price* means the price to be paid by Customer for the Products and/or Services listed in the Proposal, including any changes agreed to in writing by the parties.
   h) *Shipping Date* means the shipping date(s) that SPX has communicated to customer
   i) *Services* means any consulting services to be furnished by SPX to Customer as set forth in the Proposal;
   j) *Rigging* means the labor, materials and machinery required to remove or install any Products.
   k) *Low-Power Broadcast Product* means any Broadcast Product identified as a Low Power Product in the Proposal or in SPX's Product Catalog.

   PROPOSAL, ACCEPTANCE AND GOVERNING PROVISIONS. A Proposal will automatically expire if not accepted by Customer within sixty (60) days from its date or any extension of such date approved in writing by SPX, and Customer's acceptance of the Proposal, by purchase order or signature, shall constitute Customer's offer and will evidence Customer's intent that the sale of the Products and the furnishing of any Services shall be governed by the Proposal and the Terms. **SPX's acceptance of Customer's offer is conditioned upon Customer's acceptance of the Terms set forth herein and Customer's agreement to be bound by and comply with the Terms. The Terms, the Proposal, and all referenced attachments constitute the entire agreement between Customer and SPX ("Agreement"), and no amendment or modification shall be binding on SPX unless in writing and signed by an officer of SPX. The failure of SPX to object to provisions contained in any purchase order or other document of Customer's shall not be construed as a waiver by SPX of the Terms or an acceptance of any such provisions. Any conflicting or additional terms or conditions set forth by Customer in a purchase order or other document are not binding upon SPX, and SPX hereby expressly objects thereto.** No purchase order shall be binding upon SPX until accepted by a written acknowledgment by an authorized representative of the company.

2. **PRICES.** All Prices are subject to adjustment by SPX if: (a) the required down payment has not been made with Customer's acceptance of the Proposal, or (b) shipment is delayed by Customer beyond the Shipping Date(s). Prices for Products do not include any special packing or crating materials, which may be required for Custom-built equipment. All costs of special packing shall be paid by Customer and shall be paid prior to shipment or as soon as all packing costs are determined.

3. **TAXES.** The Prices do not include any applicable foreign, federal, state or local taxes. The amount of such taxes payable or paid by or assessed against SPX will be billed to, and shall be paid by, Customer. No tax exemption shall be recognized unless Customer has completed and returned to SPX the Tax Questionnaire provided with the Proposal.

4. **PAYMENT TERMS.** (a) The Price for all Products shall be paid to SPX in accordance with the payment schedule shown in the Proposal. Absent specific agreement to the contrary, all amounts owed to SPX, including but not limited to the Price for Services hereunder, shall be payable within 30 days after shipment; provided, however, that if shipment of the Products is delayed beyond the Shipping Date by the action or inaction of Customer, payment will be due 30 days after the Shipping Date. (b) Overdue payments shall accrue interest at the rate of 16% per annum (or the maximum percentage allowed by applicable law, if lower) from the due date. Customer shall also be required to pay SPX any and all collection costs and expenses SPX incurs (including without limitation reasonable attorneys' fees) to collect overdue payments. (c) SPX may make partial shipments of Products, and pro-rata payments shall be due for such partial shipments of Products. (d) All down payments shall be made to SPX Communication Technology, P.O. Box 277883, Atlanta, GA 30384-7883, unless otherwise directed in writing by SPX. SPX may, at its option, decline to deliver Products or to provide Services, or may stop shipment of Products in transit, whenever, for any reason, SPX has concerns about a Customer's financial status. In such event, SPX may require payment in full prior to shipping a Product or providing any Services.

5. **DELIVERY.** (a) SPX will deliver Products FOB point of shipment, with delivery to the initial carrier constituting delivery to Customer. All transportation charges will be Customer's responsibility; however, upon Customer's request, SPX will prepay transportation charges for which Customer shall reimburse SPX (together with an administrative fee payable to SPX). Customer shall have sole responsibility for filing any claims with any carrier for delay, loss or damage. (b) Any Shipping Dates are predictions made by SPX of the times within which it is likely the Products will be shipped; however, due to the difficulties inherent in predicting future delivery dates or periods, SPX does not promise, guarantee or otherwise obligate itself to have the Products shipped on or before that time. **SPX will endeavor to meet the Shipping Date(s), but shall not be liable in damages or otherwise, nor shall Customer be relieved of performance, because of failure to meet them.** However, as to Products which, without Customer's fault, have not been shipped to Customer within three (3) months after the Shipping Date(s) applicable to such Products, Customer may, by providing written notice to SPX, delete from this Agreement any such Products that have not been shipped to Customer before SPX receives Customer's written notice of deletion, and the Price shall be proportionately reduced. **The foregoing right is Customer's exclusive remedy for any delays in shipment.** SPX may, in its discretion, accept standard Products returned for credit (shipping prepaid) within 60 days of receipt subject to a restocking fee.

6. **DELIVERY TO STORAGE.** Customer agrees to authorize and accept shipment of Products on the Shipping Date(s). To the extent Customer is unable or otherwise fails to accept shipment of Products on the Shipping Date(s), or if Customer has failed to timely provide SPX with payment due and delivery instructions, Customer agrees that SPX is authorized to deliver the Products into storage and bill Customer as though shipment had been made to Customer, subject to SPX's security interest. Title to such Product(s) and the risk or loss thereof or damage thereto shall pass to Customer when placed in storage. Customer shall be responsible for all storage charges and expenses and, to the extent any storage charges and expenses are incurred by SPX, Customer shall reimburse SPX for such storage charges and expenses (together with an administrative fee payable to SPX).

7. **TITLE, INSURANCE AND RISK OF LOSS.** Subject to SPX's security interest, and except as provided in Section 6, both title to the Products and risk of loss or damage passes to Customer upon delivery to the initial carrier.

SECURITY INTEREST. Until the Price has been paid in full, SPX reserves, and Customer hereby grants to SPX, a first priority security interest under the Uniform Commercial Code in the Products. Customer also agrees to execute such documents and to take such other actions as are reasonably requested by SPX to perfect its security interest in the Products. SPX further retains a right of set-off against any obligations owing by Customer, whether or not related to this order.

9. **PATENT LIABILITY.** Customer agrees that SPX has the right to defend, or at its option to settle, and SPX agrees, at its own expense to defend or, at its option, to settle, any claim, suit or proceeding brought against Customer on the issue of infringement of any United States patent by any Product, or any part thereof, supplied by SPX to Customer under this Agreement. SPX agrees to pay, subject to the limitations hereinafter set forth in this paragraph, any final judgment entered against Customer on such issue in any such suit or proceeding defended by SPX. Customer agrees that SPX at its sole option shall be relieved of the foregoing obligations unless Customer notifies SPX promptly in writing of any such claim, suit or proceeding, and at SPX's expense gives SPX proper and full information and assistance to settle and/or defend any such claim, suit or proceeding. If the Product, or any part thereof furnished by SPX to Customer hereunder becomes, or in the opinion of SPX may become, the subject of any claim, suit or proceeding for the infringement of any United States patent, or in the event of any adjudication that such Product or part infringes any United States patent, or if the use, lease or sale of such Product or part is enjoined, SPX may at its option and its expense: (a) procure for Customer the right under such patent to use, lease or sell, as appropriate, such Product or part, or (b) replace such Product or part, or (c) modify such Product or part, or (d) remove such Product or part and refund the aggregate payments and transportation costs paid therefore by Customer, less a reasonable sum for use, damage and obsolescence. SPX shall not be liable for any costs or expenses incurred without SPX's written authorization. **The foregoing constitutes the entire liability of SPX and Customer's sole and exclusive remedy for intellectual property infringement related to the Products. Notwithstanding the foregoing, the remedy described in this paragraph shall not apply to any suit or proceeding alleging infringement resulting from or related to SPX's compliance with Customer's specifications or design or the use of Products in combination with other goods or materials. In no event shall SPX's total liability to Customer under, or as a result of compliance with, the provisions of this section exceed the aggregate sum paid to SPX by Customer for the allegedly infringing Product or part.**

10. **WARRANTY.** Except as otherwise specified in the Proposal or other written material provided to Customer, SPX warrants new Products purchased by Customer hereunder to be free from defects in material and workmanship, as follows:
    a) **Broadcast Products** –The warranty period for any Broadcast Product, except for Low-Power products, is five (5) years from the date of shipment. The warranty period for any Low-Power Broadcast Product is one (1) year from the date of shipment.
    b) **Lighting Products** – The warranty period for lighting Products is one (1) year from the date of shipment for halogen/incandescent light source equipment, two (2) years from date of shipment for control devices and strobe light source equipment, or five (5) years from the date of shipment for LED light source equipment.
    c) **Monitoring Products** – The warranty period for monitoring Products shall be one (1) year from the date of shipment.
    d) **Repaired or Refurbished Products** – The warranty period for repaired or refurbished Products (other than Products repaired under warranty) shall be ninety (90) days from date of shipment, unless otherwise provided in the applicable Proposal.

All Products –

SPX shall, during the applicable warranty period and subject to the right to inspect such Product, repair or replace, at SPX's sole discretion, such warranted Product as is found to be defective, subject to the conditions of these Terms. For returns, the warranted Product must be properly authorized for return (with a Return Materials Authorization (RMA) number), packed and returned to SPX, transportation prepaid. Replacement parts will be sent only upon receipt of a valid purchase order. If determined by SPX to be a valid warranty claim, the purchase order obligation will be voided; otherwise, Customer shall be responsible for the purchase order obligation.

For products that cannot reasonably be returned, Customer has the obligation to provide photographic or other evidence to document a claim. SPX may agree to send a representative to the Customer's site to inspect the warranted Product if Customer has demonstrated a sufficient basis for concluding that there is, in fact, a Product defect. In the event that SPX sends such a representative, and in the event that the inspection determines that the Product is not, in fact, defective, then Customer shall compensate SPX at its standard rates for all of its direct and indirect costs for the inspection.

Replacement of any original SPX parts with non-SPX parts will take the Products out of compliance and void this warranty.

If SPX fails to repair or replace any defective Product, Customer agrees that the exclusive measure of damages shall be the reasonable cost of the repair or replacement of the defective product at the time. SPX's warranty obligation is conditioned on Customer's payment of all amounts due under these terms as well as Customer's compliance with its obligations hereunder.

Repair or replacement of defective Products does not re-start the warranty periods defined above; the warranty period commences upon initial delivery or installation of the original Product, as described above.

The Customer's warranty rights under these Terms shall apply only if SPX receives prompt written notice of any alleged defect within the applicable warranty period defined above, the Product has been operated in accordance with SPX's written instructions, and SPX's examination discloses that such Product has not been damaged through accident or negligence, misuse, alteration, or improper maintenance, repair, or installation.

No warranty shall apply: (a) to any Products that have been repaired, worked upon, disassembled or altered by persons not authorized by SPX in such a manner as to injure the stability or reliability of such Products, (b) to any Products that have been subject to misuse, negligence or accident other than by DC, (c) to any Products that have not been connected, installed, used, maintained, inspected or adjusted by appropriately qualified personnel in accordance with the written instructions furnished by SPX, (d) with respect to any Product that has had its serial number altered, effaced or removed, (e) to damage resulting from: Force Majeure; intentional acts, such as sabotage, terrorism, or vandalism; accidents; extreme weather, the impact of ambient chemicals, and/or flying objects, (f) to ordinary wear and tear resulting from use and exposure or (g) to any party other than the original purchaser of the Products.

The foregoing warranties are in lieu of, and SPX expressly disclaims, all other warranties, express or implied in fact or by law, including without limitation all warranties of merchantability or fitness for a particular purpose or otherwise, and the foregoing warranties state SPX's entire and exclusive liability, and Customer's sole and exclusive remedy, in connection with the sale or furnishing of service, products or parts, their design, suitability for use, installation or operation. Without limiting the foregoing, SPX shall in no event be liable for rigging charges connected with repair or replacement of defective Products or Services covered by these warranties, or for any third party

engineering or consulting fees. Equipment furnished by SPX but not bearing its trademark or trade name shall carry no warranties, except those, if any, extended by and enforceable against the manufacturer at the time of delivery to SPX.

11. **LIMITATION OF LIABILITY. SPX shall not be liable under any theory of relief, including without limitation breach of warranty, breach of contract, tort (including negligence), strict liability, or otherwise, arising out of or related to these Terms or products or services provided hereunder or SPX's acts or omissions for: (i) any indirect, incidental, special or consequential damages whatsoever (including without limitation, loss of anticipated value of a business or its reputation) or (ii) any damage or loss in excess of the price actually paid by Customer. Any action by Customer must be commenced within one year after the cause of action has accrued.**

12. **FORCE MAJEURE. SPX shall not be liable for delay in performance or failure to perform any of its obligations, if the delay or failure results directly or indirectly from Force Majeure.** Force Majeure means any law, order, regulation, direction, request, action or failure to act of Customer or of any government having jurisdiction over SPX, its subcontractors and/or its suppliers, or of any department, agency or corporation of one or more of such governments; failure or delay of transportation; suspension or cancellation of any required license; insurrection; riots, national emergencies; war; acts of public enemies, strikes or other labor difficulties; inability to obtain necessary labor, manufacturing facilities, materials or components from SPX's usual sources; fires, floods, earthquakes, lightning or other catastrophes; acts of God; extreme weather conditions; or any cause of like or different kind beyond the control of SPX. SPX shall notify Customer in writing if performance of any of its obligations under this Agreement is delayed by reasons of Force Majeure.

13. **PROPRIETARY INFORMATION.** SPX retains title to and ownership of all engineering and production prints, drawings, technical data, and other information and documents that relate to the Products and Services sold to Customer and any intellectual property rights embodied therein. Unless advised by SPX in writing to the contrary, all such information and documents disclosed or delivered by SPX to Customer are to be deemed proprietary to SPX and shall be used by Customer solely for the purpose of inspection, installation, maintenance and use of the Products purchased hereunder and not used by Customer for any other purpose. Customer shall maintain such proprietary information with a standard of care no less stringent than it uses with its own confidential information.

14. **TERMINATION/SUSPENSION.** Without prejudice to its other rights, SPX may immediately terminate this Agreement by giving notice to Customer or suspend the performance of SPX's obligations if Customer:
    a) Breaches this Agreement and fails to remedy that breach within 14 days of a request by SPX; or
    b) Ceases business operations, is unable to pay Customer's debts as they fall due, makes an assignment for the benefit of creditors, commences winding-up, has a receiver or liquidator appointed over any of Customer's assets, or becomes subject to a bankruptcy or insolvency proceeding.

OTHER CONDITIONS.

a) Modifications of Products may be made by SPX or its suppliers prior to delivery for reasons such as improvement in performance, simplifications in design, availability of materials, etc., but not to such an extent that the performance will be materially affected.
b) Customer shall not assign this Agreement, or any rights thereunder, without the prior written consent of SPX.
c) SPX shall not be deemed to have waived any term or condition of this Agreement or to have assented to any exception to or modification of such terms and conditions unless such waiver or assent is in writing and signed by an authorized officer of SPX. SPX's failure at any time to require strict performance by Customer of any provision in this Agreement shall not waive or diminish SPX's right thereafter to demand strict performance therewith or with any other provision. Waiver of any default shall not waive any other default.
d) In the event that any part of this Agreement is or becomes invalid or illegal in whole or in part, such part shall be deemed amended so as to, as nearly as possible, be consistent with the intent expressed in the Agreement. If this is impossible, such part shall be deemed to be deleted, but shall not in any way invalidate any of the remaining provisions of this Agreement.
e) Notices shall be mailed, certified mail, or sent by or fax to Customer at the address given on the cover sheet of the Proposal and to SPX, Attention: Director of Contracts, PO Box 949, 22 Tower Road, Raymond, Maine 04071, fax: 207-655-8174. Notice shall be effective from date of receipt by addressee.
f) This Agreement, including without limitation the Proposal and all schedules attached hereto and/or incorporated herein by reference, expresses the entire agreement between the parties regarding the subject matter contained herein, and conclusively supersedes all prior agreements, writings and negotiations with respect to the subject matter hereof, and any such previous agreement is modified by the deletion of the items listed herein.
g) The rights and duties of the parties to this Agreement shall be governed by and construed in accordance with the laws of the State of Maine.
h) All disputes, differences, or questions arising out of or relating to this Agreement, or the validity, interpretation, breach, violation, or termination of this Agreement shall be resolved solely by arbitration through the CPR Institute for Dispute Resolution ("CPR") by a sole arbitrator in the city of Portland, Maine. The arbitration proceedings shall be governed by and decided in accordance with the CPR Rules for Non-Administered Arbitration then in effect, unless the parties shall mutually agree otherwise in writing. Any evidentiary rules not expressly provided by the CPR Rules shall be determined in accordance with the Federal Rules of Evidence. Notwithstanding anything to the contrary provided in this Agreement, the arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. § 1, et seq. The arbitration proceeding must be completed through the rendering of the award within six months of the selection of the arbitrator. The award of the arbitrator may be monetary damages, an order requiring performance of obligations under this Agreement or an award of injunctive, declaratory, or equitable relief or any other appropriate award or remedy. However, in no event may the arbitrator issue an award of any form of exemplary or punitive damages, nor may the arbitrator make any ruling, finding or award that does not conform to the terms and conditions of this Agreement. The award rendered by the arbitrator shall be final and binding upon the parties, and judgment may be entered by any competent court having jurisdiction. The award of the arbitrator shall be accompanied by a written explanation of the basis for the award. Notwithstanding anything to the contrary provided in this paragraph and without prejudice to the above procedures, any of the parties may apply to any court of competent jurisdiction for injunctive or other equitable relief if such action is necessary to avoid irreparable damage or to preserve the status quo.

CONSULTING SERVICES. SPX will, at Customer's request, furnish a representative to consult regarding the installation of the Products. Charges for furnishing such representative shall be at SPX's per diem rate in effect at the time, plus transportation and reasonable living expenses, including standard general and administrative charges. Such consulting service shall not include the furnishing or arranging for the furnishing of any equipment, materials or services required for the actual installation of Products.

Dielectric

Proposal #: **C-04637** Antenna Type: **TLP-12A** Channel: **29 DTV**

Call Letters: **WSWP** Location: **Welch, WV**

Electrical Specifications		Value Ratio	Value dBd	Remarks
RMS Gain at Main Lobe over Halfwave Dipole	Hpol	12.0	10.79	
	Vpol			
RMS Gain at Horizontal over Halfwave Dipole	Hpol	10.1	10.04	
	Vpol			
Peak Directional Gain over Halfwave Dipole	Hpol	12.0	10.79	
	Vpol			
Peak Directional Gain at Horizontal over Halfwave Dipole	Hpol	10.1	10.04	
	Vpol			
Circularity Directional		dB		
Axial Ratio		dB		
Beam Tilt		1.00 deg		
Average Power		5 kW	6.99 dBk	
Antenna Input: T/L		1 5/8 in	50.0 ohm	Type: EIA/DCA
Maximum Antenna Input VSWR		Channel	1.10 : 1	Notes:
Patterns	Azimuth	A-HPOL		
	Elevation	12L120100	12L120100-90	

Mechanical Specifications		Metric	English	Preliminary
Height with Lightning Protector	H4	m	ft	**Side mounted**
Height Less Lightning Protector	H2	6.9 m	22.8 ft	TIA/EIA-222-F.
Height of Center of Radiation	H3	3.5 m	11.4 ft	
Basic Wind Speed	V	112.7 km/h	70 mi/h	
Force Coeff. x Projected Area	CaAc	1.4 m^2	15.4 ft^2	Excludes Mounts
Weight	W	0.1 t	160 lbs	Excludes Mounts

Antenna designed in accordance with AISC specifications for design of structural steel for building as prescribed by TIA/EIA-222-F. **Mechanical Loads Exclude Mounts**

NOTE:

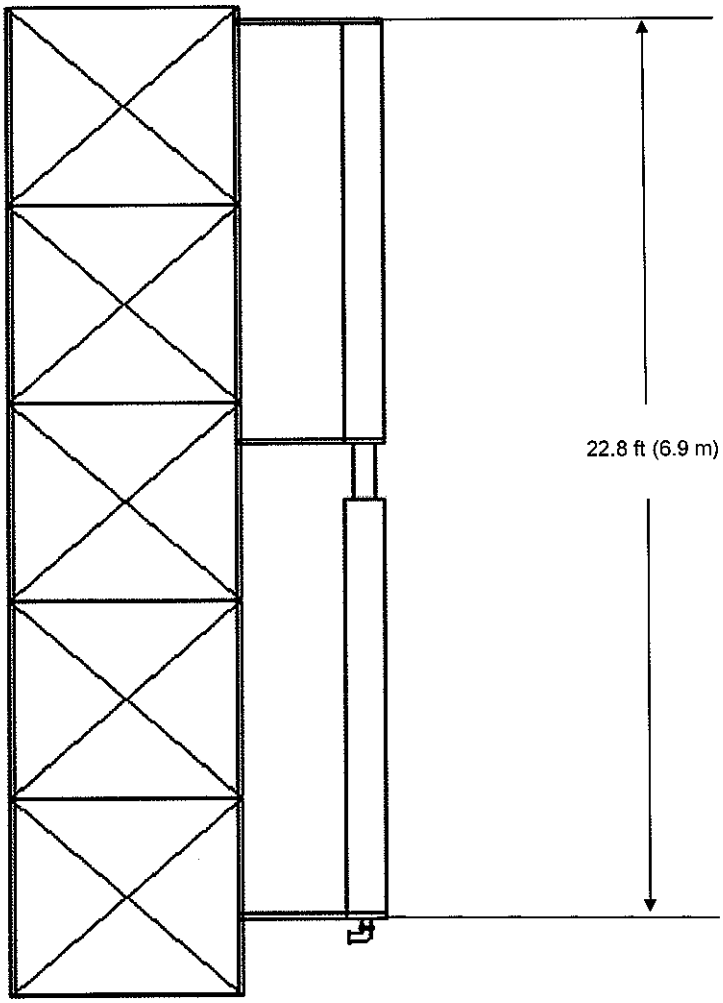
Prepared By : Paul Jones PSJ RMS Rick Smart Approved By :

Original Date : 29-Apr-11

Dielectric

Proposal #: **C-04637** Antenna Type: **TLP-12A** Channel: **29 DTV**

Call Letters: **WSWP** Location: **Welch, WV**



Mechanical Specifications
TIA/EIA-222-F. @ 70 mi/h (112.7 km/h)

TLP-12A
Channel: D29

CaAc = 15.4 ft²(1.4 m²)
W = 160 lbs(0.1 t)

PSJ-Sidemount_5-2-11

Not to Scale

Dielectric

Proposal Number	C-04637		
Date	29-Apr-11		
Call Letters	WSWP	Channel	29
Location	Welch, WV		
Customer			
Antenna Type	TLP-12A		

SYSTEM SUMMARY

Antenna:

			H Pol	
Type:	TLP-12A	ERP:	15 kW	(11.76 dBk)
Channel:	29	Peak Gain*:	12.0	(10.79 dB)
Location:	Welch, WV	Input Power:	1.3 kW	(0.97 dBk)

Transmission Line:

Type:	EIA	Attenuation:		1.53 dB
Size:	1 5/8 in	Efficiency:	70.3%	
Impedance:	50 ohm			
Length:	300 ft	91.4 m		

Transmitter:

Power Required: 1.8 kW (2.50 dBk)

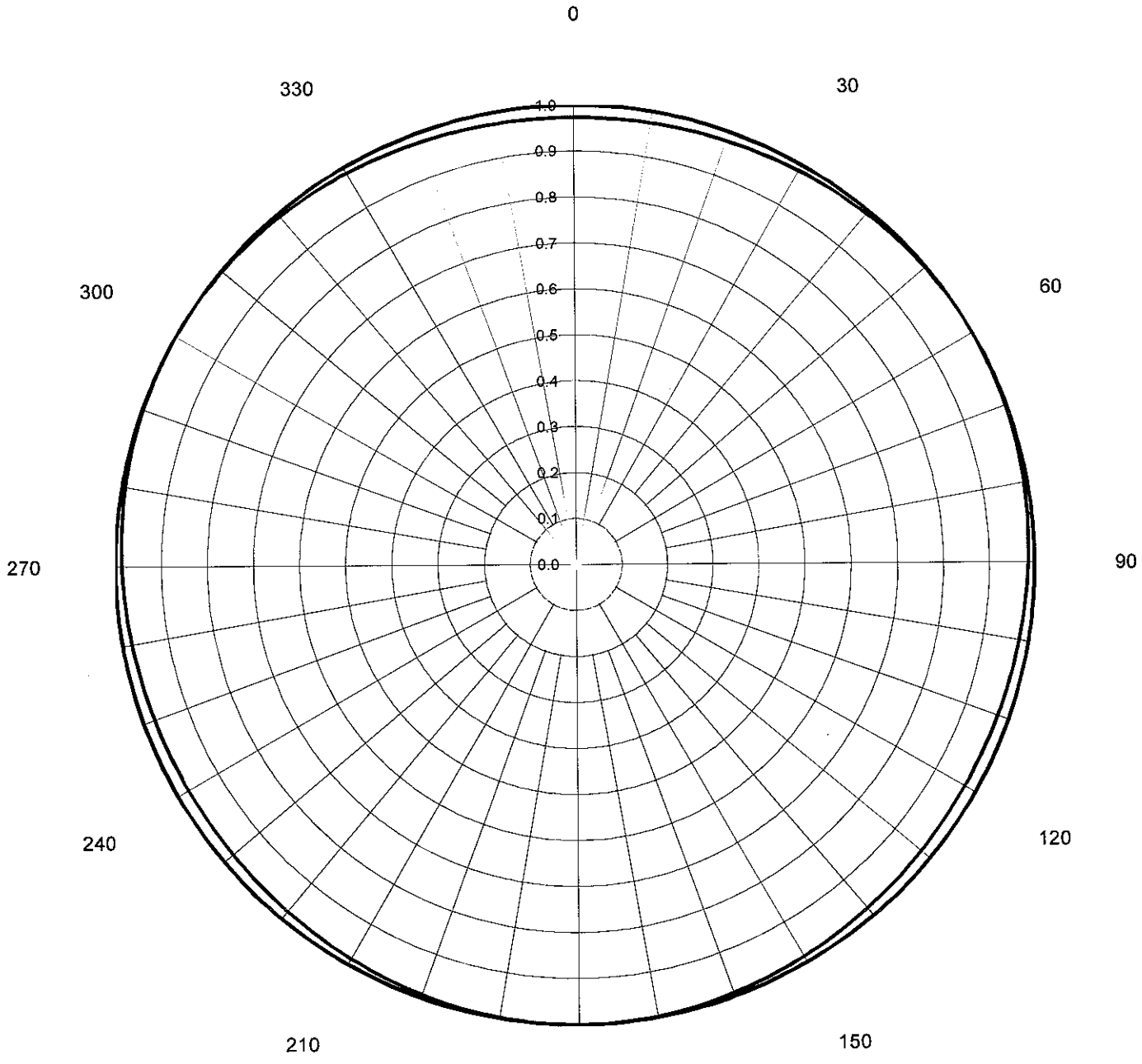
* Gain is with respect to half wave dipole.

Dielectric

Proposal Number	C-04637		
Date	29-Apr-11		
Call Letters	WSWP	Channel	29
Location	Welch, WV		
Customer			
Antenna Type	TLP-12A		

AZIMUTH PATTERN

Gain	1.00 (0.00 dB)	Frequency	563.00 MHz
Calculated / Measured	Calculated	Drawing #	A-HPOL



Dielectric

Proposal Number	**C-04637**
Date	**29-Apr-11**
Call Letters	**WSWP** Channel **29**
Location	**Welch, WV**
Customer	
Antenna Type	**TLP-12A**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing #: **A-HPOL**

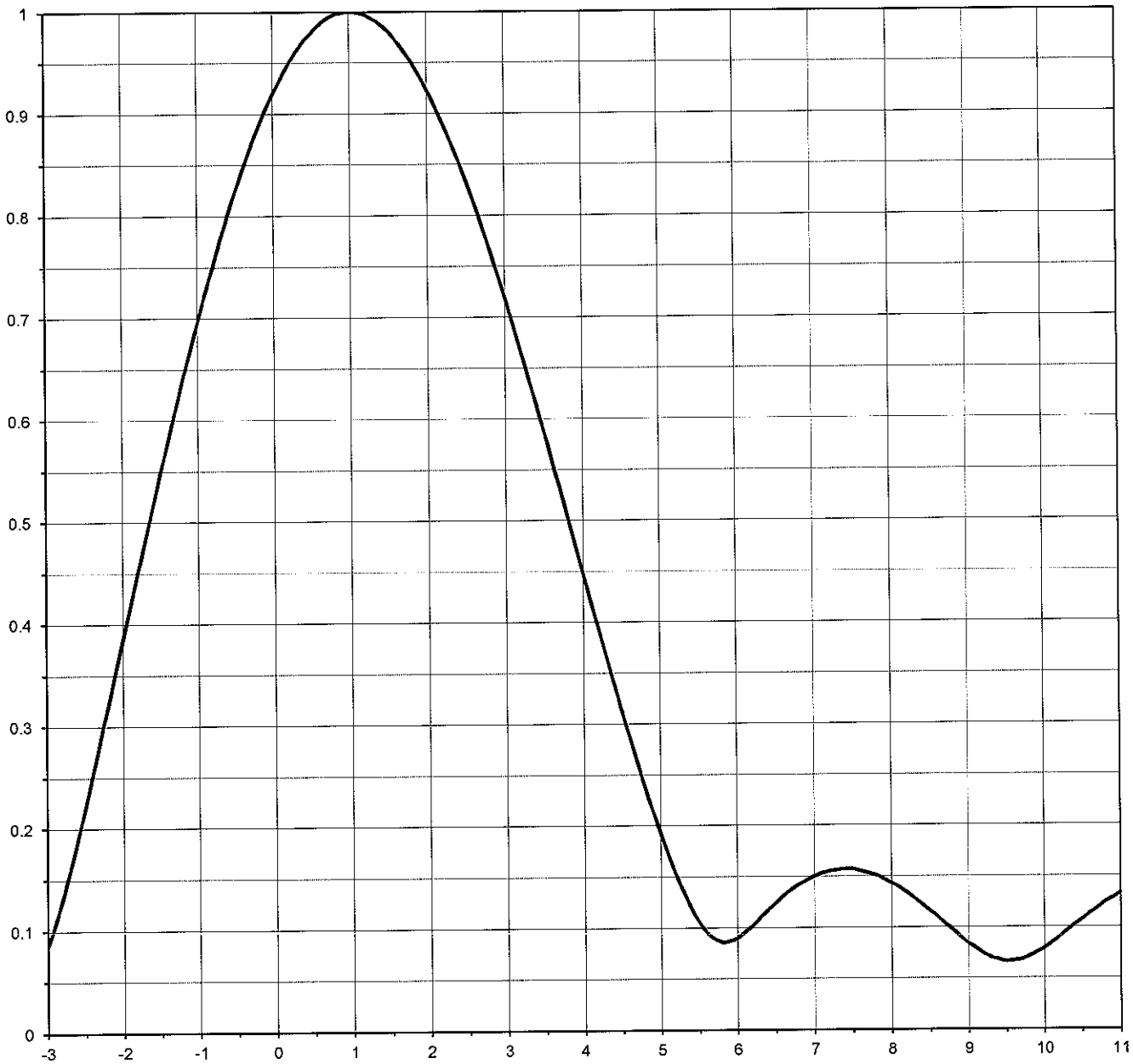
Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.973	45	0.996	90	0.986	135	0.977	180	1.000	225	0.977	270	0.986	315	0.996
1	0.973	46	0.996	91	0.985	136	0.977	181	1.000	226	0.976	271	0.987	316	0.995
2	0.973	47	0.997	92	0.985	137	0.978	182	1.000	227	0.976	272	0.987	317	0.995
3	0.974	48	0.997	93	0.984	138	0.978	183	1.000	228	0.976	273	0.988	318	0.994
4	0.974	49	0.998	94	0.983	139	0.979	184	1.000	229	0.975	274	0.989	319	0.993
5	0.974	50	0.998	95	0.983	140	0.979	185	0.999	230	0.975	275	0.989	320	0.993
6	0.974	51	0.998	96	0.982	141	0.980	186	0.999	231	0.975	276	0.990	321	0.992
7	0.974	52	0.999	97	0.981	142	0.981	187	0.999	232	0.974	277	0.991	322	0.992
8	0.974	53	0.999	98	0.981	143	0.981	188	0.999	233	0.974	278	0.992	323	0.991
9	0.975	54	0.999	99	0.980	144	0.982	189	0.998	234	0.974	279	0.992	324	0.990
10	0.975	55	0.999	100	0.979	145	0.983	190	0.998	235	0.974	280	0.993	325	0.989
11	0.975	56	1.000	101	0.979	146	0.983	191	0.998	236	0.974	281	0.993	326	0.989
12	0.976	57	1.000	102	0.978	147	0.984	192	0.997	237	0.974	282	0.994	327	0.988
13	0.976	58	1.000	103	0.978	148	0.985	193	0.997	238	0.973	283	0.995	328	0.987
14	0.976	59	1.000	104	0.977	149	0.985	194	0.996	239	0.973	284	0.995	329	0.987
15	0.977	60	1.000	105	0.977	150	0.986	195	0.996	240	0.973	285	0.996	330	0.986
16	0.977	61	1.000	106	0.976	151	0.987	196	0.995	241	0.973	286	0.996	331	0.985
17	0.978	62	1.000	107	0.976	152	0.987	197	0.995	242	0.973	287	0.997	332	0.985
18	0.978	63	1.000	108	0.976	153	0.988	198	0.994	243	0.974	288	0.997	333	0.984
19	0.979	64	1.000	109	0.975	154	0.989	199	0.993	244	0.974	289	0.998	334	0.983
20	0.979	65	0.999	110	0.975	155	0.989	200	0.993	245	0.974	290	0.998	335	0.983
21	0.980	66	0.999	111	0.975	156	0.990	201	0.992	246	0.974	291	0.998	336	0.982
22	0.981	67	0.999	112	0.974	157	0.991	202	0.992	247	0.974	292	0.999	337	0.981
23	0.981	68	0.999	113	0.974	158	0.992	203	0.991	248	0.974	293	0.999	338	0.981
24	0.982	69	0.998	114	0.974	159	0.992	204	0.990	249	0.975	294	0.999	339	0.980
25	0.983	70	0.998	115	0.974	160	0.993	205	0.989	250	0.975	295	0.999	340	0.979
26	0.983	71	0.998	116	0.974	161	0.993	206	0.989	251	0.975	296	1.000	341	0.979
27	0.984	72	0.997	117	0.974	162	0.994	207	0.988	252	0.976	297	1.000	342	0.978
28	0.985	73	0.997	118	0.973	163	0.995	208	0.987	253	0.976	298	1.000	343	0.978
29	0.985	74	0.996	119	0.973	164	0.995	209	0.987	254	0.976	299	1.000	344	0.977
30	0.986	75	0.996	120	0.973	165	0.996	210	0.986	255	0.977	300	1.000	345	0.977
31	0.987	76	0.995	121	0.973	166	0.996	211	0.985	256	0.977	301	1.000	346	0.976
32	0.987	77	0.995	122	0.973	167	0.997	212	0.985	257	0.978	302	1.000	347	0.976
33	0.988	78	0.994	123	0.974	168	0.997	213	0.984	258	0.978	303	1.000	348	0.976
34	0.989	79	0.993	124	0.974	169	0.998	214	0.983	259	0.979	304	1.000	349	0.975
35	0.989	80	0.993	125	0.974	170	0.998	215	0.983	260	0.979	305	0.999	350	0.975
36	0.990	81	0.992	126	0.974	171	0.998	216	0.982	261	0.980	306	0.999	351	0.975
37	0.991	82	0.992	127	0.974	172	0.999	217	0.981	262	0.981	307	0.999	352	0.974
38	0.992	83	0.991	128	0.974	173	0.999	218	0.981	263	0.981	308	0.999	353	0.974
39	0.992	84	0.990	129	0.975	174	0.999	219	0.980	264	0.982	309	0.998	354	0.974
40	0.993	85	0.989	130	0.975	175	0.999	220	0.979	265	0.983	310	0.998	355	0.974
41	0.993	86	0.989	131	0.975	176	1.000	221	0.979	266	0.983	311	0.998	356	0.974
42	0.994	87	0.988	132	0.976	177	1.000	222	0.978	267	0.984	312	0.997	357	0.974
43	0.995	88	0.987	133	0.976	178	1.000	223	0.978	268	0.985	313	0.997	358	0.973
44	0.995	89	0.987	134	0.976	179	1.000	224	0.977	269	0.985	314	0.996	359	0.973

Dielectric

Proposal Number	**C-04637**		
Date	**29-Apr-11**		
Call Letters	**WSWP**	Channel	**29**
Location	**Welch, WV**		
Customer			
Antenna Type	**TLP-12A**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**12.00 (10.79 dB)**	Beam Tilt	**1.00 deg**
RMS Gain at Horizontal	**10.10 (10.04 dB)**	Frequency	**563.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**12L120100**

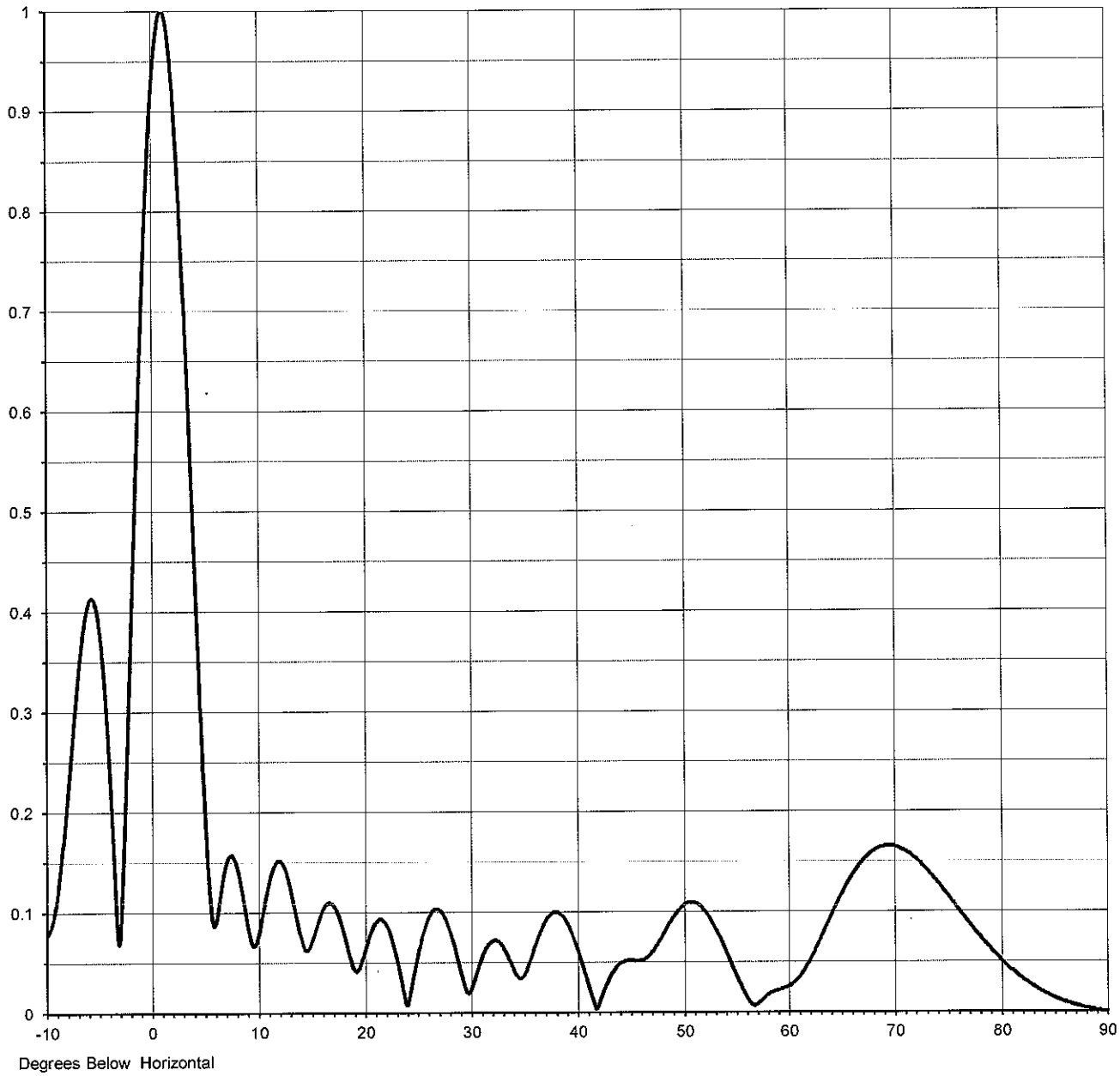


Dielectric

Proposal Number	C-04637		
Date	29-Apr-11		
Call Letters	WSWP	Channel	29
Location	Welch, WV		
Customer			
Antenna Type	TLP-12A		

ELEVATION PATTERN

RMS Gain at Main Lobe	12.00 (10.79 dB)	Beam Tilt	1.00 deg
RMS Gain at Horizontal	10.10 (10.04 dB)	Frequency	563.00 MHz
Calculated / Measured	Calculated	Drawing #	12L120100-90



Dielectric

Proposal Number	**C-04637**		
Date	**29-Apr-11**		
Call Letters	**WSWP**	Channel	**29**
Location	**Welch, WV**		
Customer			
Antenna Type	**TLP-12A**		

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **12L120100-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.077	2.4	0.854	10.6	0.107	30.5	0.037	51.0	0.109	71.5	0.156
-9.5	0.090	2.6	0.813	10.8	0.118	31.0	0.053	51.5	0.106	72.0	0.152
-9.0	0.118	2.8	0.767	11.0	0.128	31.5	0.065	52.0	0.101	72.5	0.146
-8.5	0.164	3.0	0.719	11.5	0.146	32.0	0.071	52.5	0.094	73.0	0.141
-8.0	0.222	3.2	0.667	12.0	0.151	32.5	0.071	53.0	0.084	73.5	0.135
-7.5	0.284	3.4	0.614	12.5	0.144	33.0	0.066	53.5	0.074	74.0	0.128
-7.0	0.341	3.6	0.559	13.0	0.126	33.5	0.056	54.0	0.062	74.5	0.121
-6.5	0.385	3.8	0.504	13.5	0.101	34.0	0.044	54.5	0.049	75.0	0.115
-6.0	0.410	4.0	0.448	14.0	0.076	34.5	0.035	55.0	0.037	75.5	0.108
-5.5	0.409	4.2	0.393	14.5	0.062	35.0	0.036	55.5	0.026	76.0	0.101
-5.0	0.379	4.4	0.339	15.0	0.069	35.5	0.048	56.0	0.015	76.5	0.094
-4.5	0.318	4.6	0.287	15.5	0.085	36.0	0.064	56.5	0.007	77.0	0.087
-4.0	0.227	4.8	0.237	16.0	0.101	36.5	0.078	57.0	0.007	77.5	0.080
-3.5	0.116	5.0	0.192	16.5	0.109	37.0	0.090	57.5	0.012	78.0	0.074
-3.0	0.084	5.2	0.151	17.0	0.108	37.5	0.097	58.0	0.017	78.5	0.067
-2.8	0.132	5.4	0.118	17.5	0.098	38.0	0.100	58.5	0.020	79.0	0.061
-2.6	0.191	5.6	0.095	18.0	0.080	38.5	0.097	59.0	0.022	79.5	0.056
-2.4	0.254	5.8	0.086	18.5	0.059	39.0	0.090	59.5	0.023	80.0	0.050
-2.2	0.319	6.0	0.090	19.0	0.043	39.5	0.079	60.0	0.025	80.5	0.045
-2.0	0.385	6.2	0.102	19.5	0.044	40.0	0.064	60.5	0.029	81.0	0.041
-1.8	0.451	6.4	0.117	20.0	0.060	40.5	0.047	61.0	0.034	81.5	0.036
-1.6	0.515	6.6	0.131	20.5	0.077	41.0	0.030	61.5	0.041	82.0	0.032
-1.4	0.578	6.8	0.142	21.0	0.089	41.5	0.012	62.0	0.050	82.5	0.028
-1.2	0.639	7.0	0.150	21.5	0.093	42.0	0.006	62.5	0.060	83.0	0.025
-1.0	0.696	7.2	0.155	22.0	0.088	42.5	0.021	63.0	0.071	83.5	0.021
-0.8	0.750	7.4	0.157	22.5	0.076	43.0	0.033	63.5	0.083	84.0	0.018
-0.6	0.800	7.6	0.155	23.0	0.056	43.5	0.042	64.0	0.094	84.5	0.016
-0.4	0.845	7.8	0.151	23.5	0.031	44.0	0.048	64.5	0.107	85.0	0.013
-0.2	0.885	8.0	0.143	24.0	0.007	44.5	0.051	65.0	0.118	85.5	0.011
0.0	0.919	8.2	0.134	24.5	0.028	45.0	0.052	65.5	0.128	86.0	0.009
0.2	0.948	8.4	0.122	25.0	0.054	45.5	0.051	66.0	0.137	86.5	0.007
0.4	0.971	8.6	0.110	25.5	0.077	46.0	0.052	66.5	0.144	87.0	0.006
0.6	0.987	8.8	0.097	26.0	0.093	46.5	0.054	67.0	0.151	87.5	0.004
0.8	0.997	9.0	0.084	26.5	0.102	47.0	0.059	67.5	0.156	88.0	0.003
1.0	1.000	9.2	0.074	27.0	0.103	47.5	0.066	68.0	0.160	88.5	0.002
1.2	0.997	9.4	0.068	27.5	0.096	48.0	0.075	68.5	0.163	89.0	0.001
1.4	0.988	9.6	0.067	28.0	0.083	48.5	0.085	69.0	0.165	89.5	0.000
1.6	0.972	9.8	0.068	28.5	0.065	49.0	0.094	69.5	0.165	90.0	0.000
1.8	0.951	10.0	0.075	29.0	0.043	49.5	0.101	70.0	0.164		
2.0	0.924	10.2	0.084	29.5	0.024	50.0	0.106	70.5	0.162		
2.2	0.891	10.4	0.096	30.0	0.021	50.5	0.109	71.0	0.160		

Dielectric

A Unit of SPX Corporation

TV LOW POWER ANTENNA INSTRUCTION MANUAL

By
Dielectric Communications
22 Tower Road
Raymond, Maine 04071
Phone: 800-341-9678
FAX: 207-655-8173

March 2010

TABLE OF CONTENTS

Warnings:

The purchaser is responsible for determining if the support structure, pole, tower or mast will safely handle the antenna system.

For reliable, moisture free operation, maintain 5 psig of dry air or dry nitrogen to the antenna system at all times. Failure to keep the transmission line and antenna pressurized with dry air or nitrogen may allow moisture into the system can cause arcing and physical destruction of the coaxial system. The damage degrades the performance and eventually failure of the antenna. Failure or reduced performance of the antenna due to moisture in the system is not manufacture warranted.

This antenna system, when energized by a RF transmitter, will present a high intensity R.F. field. Care must be adhered not to touch the antenna system when energized. Personnel should not be in the aperture of the antenna while the antenna system is energized. All maintenance or repairs should be done with the primary voltage to the transmitter disconnected and all transmitter remote controls disabled.

Return Policy

When returning any material to the factory, be sure to call your sales representative or customer service support and obtain a material return authorization (MRA) number first. Use this number in all correspondence. Material may be refused and sent back at customer expense without a MRA.

Factory Tests

The antenna has been completely assembled and tested at the factory. Each antenna system has been tuned to the required frequency.

Each antenna section is internally matched and requires no tuning after installation. The total input VSWR of the antenna is measured on a tuning rack and is tuned to be 1.1:1 or better within the specified TV channel.

Each section is pressure tested to 15 psig at assembly.

Antenna Description

Dielectrics TLP Antenna is comprised of one or more eight-layer antenna section(s). Each section has vertical rows of horizontally or circularly polarized slots and directors mounted along the cylinder. The antenna sections are made of aluminum outers and copper inners along with stainless steel hardware and slot covers. These antennas are designed to be corrosion resistant and maintenance free. Adjustments and/or tuning are not necessary.

Uncrating

Prior to opening any crate(s) or removing strapping from skids, inspect for shipping damage. Notify the ***carrier*** immediately of any observed damage to the crate.

Note: TLP-8: The antenna single section is shipped under pressure and should remain so until installation.

TLP-16,-24,-32: The two, three, or four antenna sections and feed lines are shipped under pressure and should remain so until installation.

Open each crate and verify contents against packing list. If any parts are missing notify Dielectric Communications immediately. Inspect contents for possible shipping damage.

Note: If any parts are found damaged, *promptly notify the carrier.* Shipping crates may be used to return damaged parts.

Antenna Sections

Antenna sections are crated individually fully assembled, with hardware and O-rings.

Transmission Line, Power Divider & Feed Lines

Transmission lines may be crated with one or more sections per box. Feed lines are coiled in a separate crate.

Power dividers and feed lines (TLP-16,-24,-32) were match marked so that the antenna system will perform as tuned by the factory.

Where applicable, elbows and transmission line(s) for an elbow complex may be matched marked.

Note: Discoloration on transmission line exterior surface is normal and was caused by handling and exposure to the elements during tuning.

Mounts

Mounts may be crated on a pallet or in a box. Verify quantities and check for damage prior to removal.

Assembly/Installation

Notes:

1. Input section-Power Divider:

   There is a transmission line (Input) section that is bolted onto the power divider. Do not remove the inner conductor from the outer of the input feed line. This inner conductor is usually slugged during the tuning process of the antenna. If the inner conductor is moved, it will affect the performance of the antenna.

2. O-ring Installation:

   All flange joints are provided with black "Buna" O-ring seals. Ensure that all seal grooves are free of debris. Apply a light coat of the provided non-melting silicon dielectric lubricant (Dow Corning no. 4 compound) to the O-rings at time of assembly. The lubricant will aid in holding the O-ring in the seal groove. Always be sure the lubricant is applied very lightly. If applied too freely, so it does not get onto contact surfaces.

   Also to prevent arcing and air leaks, ensure not to pinch an O-ring between the flange contact surfaces.

   Sufficient quantities of O-rings and silicon dielectric lubricant are supplied.

3. Inner Conductor Connections:

   While assembling and installing the antenna, care must be exercised when inserting the inner conductor connector (i.e. bullet) into a mating coaxial inner conductor. While engaging, the connector should be aligned perfectly with the mating inner conductor to prevent damage to connector.

4. Section Sequence Numbers (TLP-16,-24,-32):

   If the antenna has more than one section note that the sections are not the same. The antenna sections are numbered in sequence from bottom to top, (i.e. number one is located in the bottom position). **Each section, elbow, feed line section and power divider output port are match marked**. Assembly by the number sequence ensures that the antenna system will be assembled as tuned by the factory. Reference the Installation Drawing.

5. Hardware:

Feed line hardware supplied is stainless steel. Mounting hardware may be either stainless steel or galvanized steel. Sufficient quantities are included.

Cautions

- Never climb on the antenna directors or antenna supports.
- Do not use any gas stop on the antenna. The antenna is internally pressure sealed and should be kept under pressure at all times after installation.
- Before and during installation, the antenna and feed lines should always be sealed against rain or moisture condensation.
- Do not alter the length of any feed line from the power divider to the antenna section(s).
- Connect feed lines only to their assigned (match marked) antenna sections.
- Never bend the 7/8" feed lines tighter than a ten (10) inch radius.
- Never bend the 1 5/8" feed lines tighter than a twenty (20) inch radius.
- Spacing between antenna sections should be set as specified.
- Antenna sections are not the same, do not interchange the sections from their designated order.

A. TLP-8 Assembly and Orientation

1. Assemble mounts. (Reference Universal Mount drawing in the information folder)

2. Locate and install antenna to supporting structure per Installation Drawing.

Note: If an azimuth pattern optimization and custom mounts were purchased then see the Installation Drawing for orientation with tower.

3. Remove the gas cap from the input section and connect the transmission line.

B. TLP-16, -24 & -32 Assembly and Orientation

1. Assemble mounts. (Reference Universal Mount drawing in the information folder)

For reference locate and mark the center of radiation on the tower.

2. Raise the top antenna section (i.e., highest number) and locate from the center of radiation (Reference Installation Drawing).

3. Fasten mounts to tower and orient antenna per Installation Drawing.

Note: If an azimuth pattern optimization and custom mounts were purchased then see the Installation Drawing for orientation with tower.

4. Repeat for the remaining section(s).

5. Clamp the saddle mount to the power divider and mount on the tower central to the antenna array.

6. Release the pressure and remove the gas cap from the section and the corresponding cap on the power divider. Then connect the feed line matched marked for that section.

Note: To ensure antenna performance the correct feed line must be connected to the correct section and power divider output port. Observe the match marking on sections, feed lines and power divider.

7. Repeat step 5 until all the feed lines are installed.

8. Remove the gas cap from the input section of the power divider and connect the transmission line.

9. After the feed lines have been connected, fasten the rest of the line within the supporting structure to eliminate damage. Use the "wrap-lock" clamps to fasten the lines to the tower legs, diagonals, and horizontals or support mast.

C. ***Leak Testing***

After the antenna is installed and all transmission lines are connected, check the system for leaks.

1. Pressure the system using dry nitrogen or air from a compressor-dehydrator.

   CAUTION

   Using an air supply other than specified for transmission line, may contaminate the transmission line system.

   Note: Make sure a good quality gauge is used which read accurately in the 1-20 psig (140 KPa) range, do not depend on the cylinder regulator gauge.

2. Pressurize the system to 6 psig.
3. Close the shutoff valve.
4. Give the system approximately one half hour to stabilize, and then record the pressure and the temperature.
5. Wait twenty-four hours, and then read the pressure and the temperature again. Use the following formula to obtain a corrected pressure for comparison:

   PC=(PR+14.7)(T1+460)/(T2+460)-14.7

PC=corrected final pressure, psig
PR=final pressure as read, psig
T1=beginning temperature, degrees F
T2=final temperature, degrees F

Note: A rule of thumb is that the final pressure should not be less than half the initial pressure after twenty-four hours.

6. If the system looses pressure at an unacceptably high rate, re-pressurize.

7. Leave the gas/air supply on and find the leak(s) using a "leak detector" or bubble soap.

   Should it be necessary to identify a leak, use non-ammonia based leak detection soap, such as *Snoop*, by Swagelok. If unavailable use a simple mixture of dish detergent and water. Ammonia and ammonia-based chemicals are extremely incompatible with brass and brass is one of the main components in transmission line and antenna systems. Ammonia makes the brass more susceptible to stress-corrosion cracking.

8. Correct any leaks that are found.
9. Repeat steps 2 thru 5.

D. ***Purging System***

The transmission line and the antenna system should be purged prior to applying power.

1. Purge by pressurizing the antenna array to about 10 psi (70 kPa) with compressed dehydrated air or cylinder nitrogen
2. Loosen the connection between the transmission line and input section to power divider just enough to allow an air leak.
3. Purge using table below.

   Note: Usually allow three volume changes of dry gas/air for a system. See table below for approximate volumes inside various coax sizes.

VOLUME OF COAX PER
1000 FEET OF LENGTH

Diameter	Volume
1-5/8"	13 cu. ft.
3-1/8"	50 cu. ft.
4-1/16"	90 cu. ft.
6-1/8"	200 cu. ft.

One full nitrogen cylinder, size K, contains about 240 cubic feet of gas.

For systems pressurized via dehydrator compressor the time required will depend on pressure maintained and dehydrator compressor capacity.

4. Tighten the connection and check for leaks when purging has been completed.

E. ***Pressurized System***

After system purge, reduce the supply pressure to about approximately 5 psig (35 KPa). After the pressure has stabilized, regularly note the cylinder pressure or dehydrator compressor running time as an indicator of large leaks. Pressure observation is especially important immediately after installation or any subsequent opening and re-assembly.

F. ***Pre-Operation Inspection***

Before powering the system perform the following inspection;

1. Antenna system has been installed per the installation drawing(s).
2. The system is gas tight and purged.
3. If an antenna checkout was ordered, a Dielectric Representative will give approval to apply power.

Operation

To start up apply transmitter signal. *Do not* exceed the rated power rating for the antenna.

For best performance and reliability from the Dielectric antenna follow the "Maintenance" section of this manual.

Maintenance

Inspection:

The transmission line and antenna system should be inspected once a year, as a matter of routine maintenance. The inspection can be made in conjunction with maintenance on the tower and servicing of obstruction lighting. This requires the service of a qualified TV tower maintenance crew.

Check transmission lines for breaks, loose or missing hardware, chafing and so forth. The transmission line itself should be visually checked for signs of changed alignment, undue stressing and loose coupling clamps and hardware.

Inspect the antenna mounting hardware for tightness.

Observe the dry nitrogen gas/dehydrated-compressor air usage as an indication for system leaks.

Note: Whenever the system has been open for repair purge with dry nitrogen gas or dehydrated-compressor air as described in section E of the Installation instructions. Never operate the system under power until all moisture has been purged. Otherwise permanent damage may occur to the entire system, including the transmitter and transmission line.

ILLUSTRATIONS

Installation Drawing (See Information Folder)

Universal Mount Drawing (See Information Folder)

Optional Ice shield drawing (See Information Folder)

Torque Specification

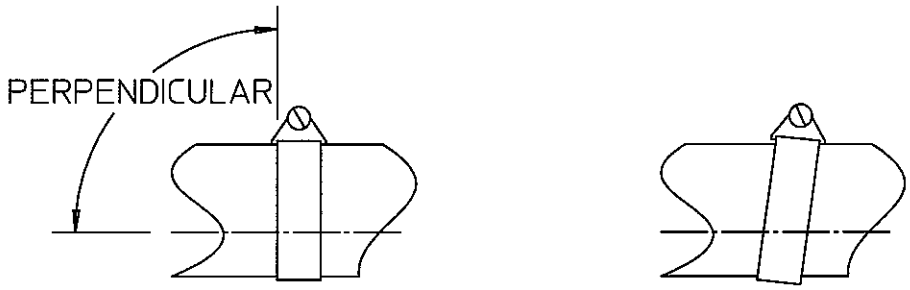
REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED

HARDWARE TORQUE SPECIFICATIONS

HARDWARE DESCRIPTION	RECOMMENDED TORQUE	
	MATERIAL 18-8 SST.	MATERIAL CS. GRADE 5
1/4-20	70 IN/LB	96 IN/LB
5/16-18	130 IN/LB	204 IN/LB
3/8-16	210 IN/LB	360 IN/LB = 30 FT/LB
1/2-13	480 IN/LB = 40FT/LB	900 IN/LB = 75 FT/LB
5/8-11	1080 IN/LB = 90 FT/LB	1800 IN/LB = 150 FT/LB
3/4-10	1440 IN/LB = 120 FT/LB	260 FT/LB
1-8	285 FT/LB	640 FT/LB
1 1/8-7	413 FT/LB	800 FT/LB
1 1/4-7	523 FT/LB	1120 FT/LB
1 3/8-6	688 FT/LB	1460 FT/LB
1 1/2-6	888 FT/LB	1940 FT/LB
HOSE CLAMPS	40 - 50 IN/LB	-

NOTE:

HOSE CLAMPS MUST BE ORIENTED PERPENDICULAR TO THE AXIS OF THE OBJECT ON WHICH THEY ARE TO BE MOUNTED.
(HOSE CLAMP BAND, FLAT ON THE OBJECT SURFACE)



DIMENSIONAL TOLERANCES
(UNLESS OTHERWISE NOTED)
4 PLACE DIMENSIONS ± .0005
3 PLACE DIMENSIONS ± .005
2 PLACE DIMENSIONS ± .02
ANGULAR DIMENSIONS ± 0°-30'
REFERANCE DIMENSIONS ARE NOT FOR MANUFACTURING OR INSPECTION
USE WORKMANSHIP STDS DWG. No. D78691

DATE STAMP
6-Oct-1999 11:18:53
A88212

PART NO:

MATERIAL:

FINISH:

DATE: 9-30-99
DR. BY: M. DAVISON
CHKD BY: LDW
ENG/MFG APPVL: CNP

Dielectric
A Unit of SPX Corporation

TITLE

DIELECTRIC TORQUE SPECIFICATIONS

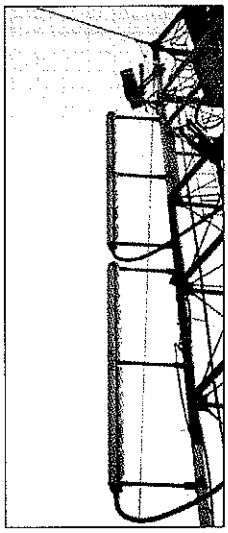
CODE IDENT. NO.			REV:
08441	A	88212	-

Dielectric
A DIVISION OF SPX

TLP Series

- Horizontal, Elliptical or Circular Polarization available
- Low cost
- Lightweight/low windload
- Slot covers or radomes
- Custom patterns available

Dielectric's TLP antenna is an economical side mounted low power UHF antenna capable of generating significant ERP levels with minimal cost. Ideal for both the NTSC and DTV broadcaster.



Maximum Input Power Rating

DTV (Average)/NTSC (Peak)*

Antenna	Standard (S) Ch. 14	Standard (S) Ch. 69	Custom (C) Ch. 14	Custom (C) Ch. 69	Special (SP) Ch. 14	Special (SP) Ch. 69
TLP-8	5.0/8.6	5.0/6.4	—	—	—	—
TLP-12	5.0/8.6	5.0/6.4	—	—	—	—
TLP-16	4.0/6.1	3.0/4.5	8.0/13.0	7.0/9.7	8.0/24.0	8.0/24.0
TLP-24	4.9/7.0	3.7/5.3	8.8/15.0	7.9/11.3	11.6/35.0	11.6/24.0
TLP-32	7.0/10.0	5.2/7.5	12.5/21.4	11.2/16.1	11.6/35.0	11.6/24.0

Input: 1-5/8" EIA on Standard, 3-1/8" EIA on Custom and Special
VSWR: 1.1:1 Maximum over channel
*NTSC: Peak Sync + 10% aural

Antenna Specifications: The tables reflect minimum values for channel 69 and maximum for channel 14. Height, weight or windload may be interpolated to find the approximate values for a particular channel as follows:

$$\frac{(14\text{-channel})\,(\text{Max.} - \text{Min})}{55} + \text{Max.}$$

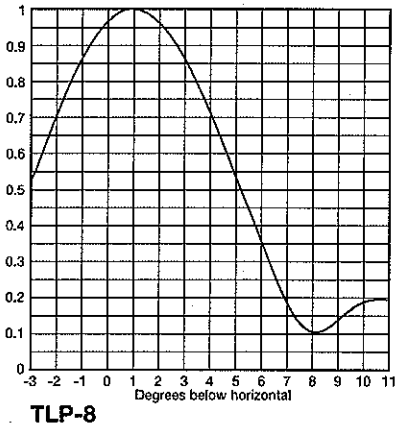
Center of Radiation is one half the height: (C/R = 0.5 Height).
Peak power gain ratio relative to half wave dipole.

Antenna Type	Azimuth Pattern	Peak Power Gain Ratio[1]	Gain dB	Height (ft)	Weight (lb)	RS-222-C spec A ft	EIA-222-F spec Ca ft
TLP- 8A	TLP- A	8. 0	9. 0	10.5 to 18.8	80 to 140	3.7 to 7.0	6.6 to 12.5
TLP-8B	TLP-B	13.6	11.3		60 to 90	4.1 to 7.0	7.9 to 13.4
TLP-8D	TLP-D	23.2	13.7		70 to 130	8.2 to 19.7	11.5 to 27.7
TLP-8E	TLP-E	31.2	14.9		80 to 160	11.3 to 28.2	15.9 to 39.7
TLP-8J	TLP-J	16.0	12.0		80 to 150	9.2 to 22.8	12.9 to 32.1
TLP-8M	TLP-M	15.2	11.8		80 to 160	11.1 to 27.7	15.5 to 38.9
TLP-12A	TLP-A	12.0	10.8	15.4 to 27.1	110 to 180	5.4 to 10.1	9.6 to 18.1
TLP-12B	TLP-B	20.4	13.1		80 to 120	6.0 to 10.2	11.6 to 19.7
TLP-12D	TLP-D	34.8	15.4		100 to 180	12.2 to 29.2	17.1 to 41.1
TLP-12E	TLP-E	46.8	16.7		110 to 220	16.8 to 42.1	23.6 to 59.1
TLP-12J	TLP-J	24.0	13.8		110 to 210	13.7 to 34.0	19.2 to 47.8
TLP-12M	TLP-M	22.8	13.6		110 to 220	16.5 to 41.2	23.1 to 57.9
TLP-16A	TLP-A	16.0	12.0	22.2 to 38.6	230 to 340	13.2 to 19.8	23.7 to 35.5
TLP-16B	TLP-B	27.2	14.3		190 to 250	14.1 to 19.8	26.3 to 37.4
TLP-16D	TLP-D	46.4	16.7		220 to 330	22.3 to 45.2	33.6 to 65.9
TLP-16E	TLP-E	62.4	18.0		240 to 380	28.5 to 62.3	42.2 to 89.9
TLP-16J	TLP-J	32.0	15.1		230 to 370	24.3 to 51.5	36.4 to 74.8
TLP-16M	TLP-M	30.4	14.8		240 to 380	28.0 to 61.2	41.6 to 88.3
TLP-24A	TLP-A	23.0	13.6	33.8 to 58.4	340 to 500	19.8 to 29.8	35.6 to 53.4
TLP-24B	TLP-B	39.1	15.9		270 to 370	21.1 to 29.8	39.5 to 56.2
TLP-24D	TLP-D	66.7	18.2		320 to 490	33.5 to 67.8	50.5 to 98.9
TLP-24E	TLP-E	89.7	19.5		340 to 560	42.7 to 93.5	63.5 to 135.0
TLP-24J	TLP-J	46.0	16.6		340 to 540	36.5 to 77.3	54.7 to 112.3
TLP-24M	TLP-M	43.7	16.4		340 to 560	42.0 to 91.8	62.4 to 132.6
TLP-32A	TLP-A	31.0	14.9	45.5 to 78.1	470 to 680	26.5 to 39.7	47.5 to 71.2
TLP-32B	TLP-B	52.7	17.2		380 to 500	28.2 to 39.7	52.7 to 74.9
TLP-32D	TLP-D	89.9	19.5		440 to 660	44.7 to 90.4	67.4 to 131.9
TLP-32E	TLP-E	120.9	20.8		470 to 760	57.0 to 124.7	84.6 to 180.0
TLP-32J	TLP-J	62.0	17.9		460 to 740	48.6 to 103.1	72.9 to 149.8
TLP-32M	TLP-M	58.9	17.7		470 to 760	56.0 to 122.4	83.3 to 176.8

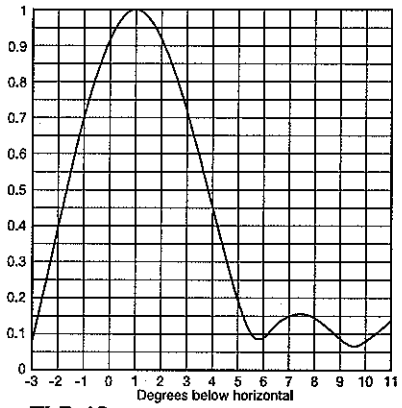
[1] Contact factory for gains of elliptically or circularly polarized versions.
[2] Windload at 50/33 lb/ft² per EIA RS-222-C

Dielectric
A DIVISION OF SPX

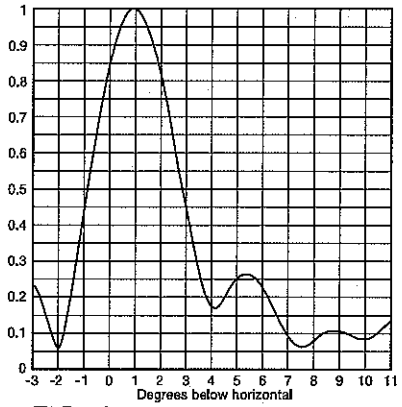
TLP Series



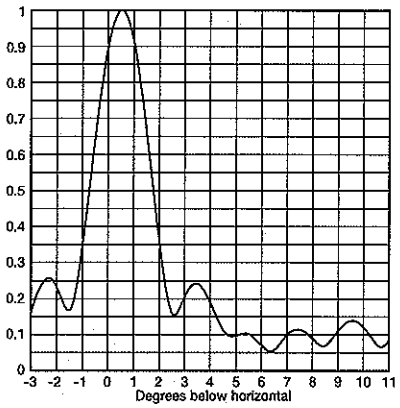
TLP-8



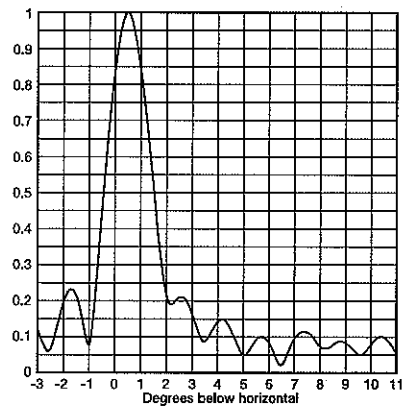
TLP-12



TLP-16



TLP-24



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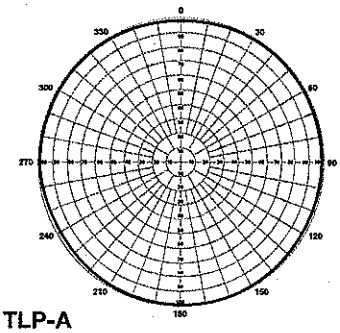
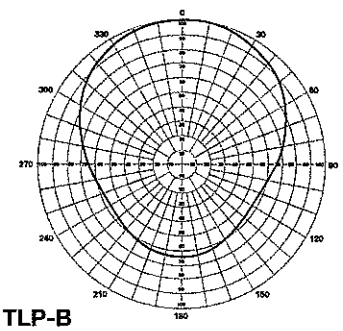
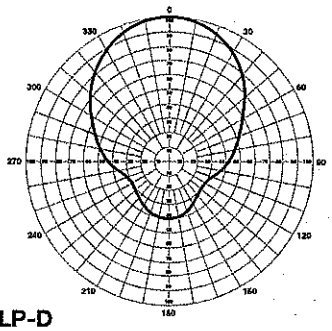


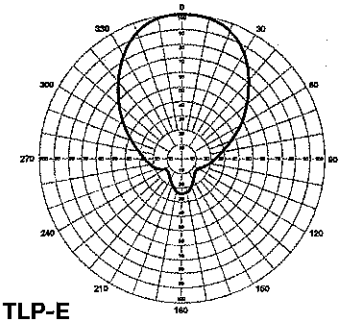
TLP-A



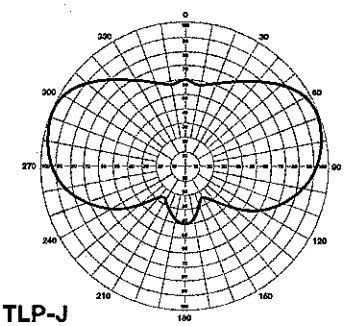
TLP-B
Directivity=1.7



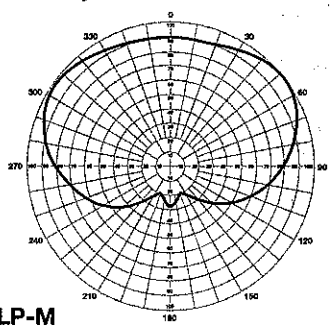
TLP-D
Directivity=2.9



TLP-E
Directivity=3.9



TLP-J
Directivity=2.0



TLP-M
Directivity=1.9

Product Specifications

ANDREW®
A CommScope Company

HJ7-50A

HJ7-50A, HELIAX® Standard Air Dielectric Coaxial Cable, corrugated copper, 1-5/8 in, black PE jacket

CHARACTERISTICS

Construction Materials

Jacket Material	PE
Dielectric Material	PE
Flexibility	Standard
Inner Conductor Material	Copper tube
Jacket Color	Black
Outer Conductor Material	Corrugated copper

Dimensions

Nominal Size	1-5/8 in
Cable Volume	14.0 ft³/kft | 1300.6 L/km
Cable Weight	1.55 kg/m | 1.04 lb/ft
Diameter Over Jacket	50.292 mm | 1.980 in
Inner Conductor OD	18.0340 mm | 0.7100 in
Outer Conductor OD	46.482 mm | 1.830 in

Electrical Specifications

Cable Impedance	50 ohm ±0.5 ohm
Capacitance	22.1 pF/ft | 72.5 pF/m
dc Resistance, Inner Conductor	0.722 ohms/km | 0.220 ohms/kft
dc Resistance, Outer Conductor	0.328 ohms/km | 0.100 ohms/kft
dc Test Voltage	11000 V
Inductance	1.870 µH/m | 0.570 µH/ft
Insulation Resistance	100000 mOhm
Jacket Spark Test Voltage (rms)	10000 V
Operating Frequency Band	1 – 2700 MHz
Peak Power	305.0 kW
Power Attenuation	3.356
Velocity	92%

Environmental Specifications

Product Specifications

HJ7-50A

Installation Temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Operating Temperature	-55 °C to +85 °C (-67 °F to +185 °F)
Storage Temperature	-70 °C to +85 °C (-94 °F to +185 °F)

General Specifications

Brand	HELIAX®

Mechanical Specifications

Bending Moment	40.7 N-m | 30.0 ft lb
Flat Plate Crush Strength	175.0 lb/in | 3.1 kg/mm
Minimum Bend Radius, Multiple Bends	508.00 mm | 20.00 in
Number of Bends, minimum	15
Number of Bends, typical	30
Pressurization, maximum	0 N/mm^2 | 30 psi
Tensile Strength	340 kg | 750 lb

Standard Conditions

Attenuation, Ambient Temperature	20 °C | 68 °F
Average Power, Ambient Temperature	40 °C | 104 °F
Average Power, Inner Conductor Temperature	100 °C | 212 °F

Product Specifications

HJ7-50A

ANDREW®
A CommScope Company

Attenuation

Frequency (MHz)	Attenuation (dB/100 m)	Attenuation (dB/100 ft)	Average Power (kW)
0.5	0.045	0.014	243.45
1	0.064	0.02	171.92
1.5	0.079	0.024	140.23
2	0.091	0.028	121.34
10	0.204	0.062	53.85
20	0.291	0.089	37.86
30	0.358	0.109	30.77
50	0.465	0.142	23.67
88	0.623	0.19	17.67
100	0.666	0.203	16.53
108	0.693	0.211	15.88
150	0.824	0.251	13.37
174	0.891	0.271	12.36
200	0.959	0.292	11.48
300	1.19	0.363	9.25
400	1.389	0.423	7.92
450	1.481	0.451	7.43
500	1.569	0.478	7.02
512	1.589	0.484	6.93
600	1.733	0.528	6.35
700	1.887	0.575	5.84
800	2.032	0.619	5.42
824	2.066	0.63	5.33
894	2.162	0.659	5.09
960	2.25	0.686	4.89
1000	2.302	0.702	4.78
1250	2.611	0.796	4.22
1500	2.898	0.883	3.80
1700	3.114	0.949	3.54
1800	3.219	0.981	3.42
2000	3.422	1.043	3.22
2100	3.521	1.073	3.13
2200	3.619	1.103	3.04
2300	3.714	1.132	2.96
2500	3.902	1.189	2.82
2700	4.084	1.245	2.70

** Values typical, guaranteed within 5%*

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2002/95/EC	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

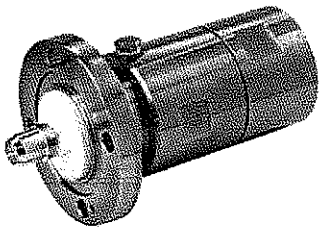
HJ7-50A

Product Specifications

ANDREW®
A CommScope Company

87R

1-5/8 in EIA Male Flange without gas barrier for 1-5/8 in HJ7-50A air dielectric cable



CHARACTERISTICS

General Specifications

Interface	1-5/8 in EIA Male Flange
Body Style	Straight
Brand	HELIAX®
Gas Barrier	No
Mounting Angle	Straight

Electrical Specifications

Connector Impedance	50 ohm
Operating Frequency Band	0 - 2700 MHz
Cable Impedance	50 ohm
RF Operating Voltage, maximum (vrms)	3880.00 V
dc Test Voltage	11 kV
Insulation Resistance, minimum	5000 MOhm
Average Power	4.9 kW @ 900 MHz
Peak Power, maximum	300.00 kW
Insertion Loss, typical	0.05 dB

Mechanical Specifications

Outer Contact Attachment Method	Tab-flare
Inner Contact Attachment Method	Thread-in stub
Outer Contact Plating	Unplated
Inner Contact Plating	Unplated

Dimensions

Nominal Size	1-5/8 in
Diameter	61.11 mm | 2.41 in

Product Specifications

87R

Length	125.81 mm | 4.95 in
Weight	1.72 kg | 3.80 lb

Environmental Specifications

Operating Temperature	-40 °C to +150 °C (-40 °F to +302 °F)
Storage Temperature	-70 °C to +100 °C (-94 °F to +212 °F)

Return Loss/VSWR

Frequency Band	VSWR	Return Loss (dB)
45–1000 MHz	1.02	40.00
1000–2000 MHz	1.04	35.00
2000–3000 MHz	1.05	32.00
3000–4000 MHz	1.17	22.00
4000–5200 MHz	1.42	15.20

Regulatory Compliance/Certifications

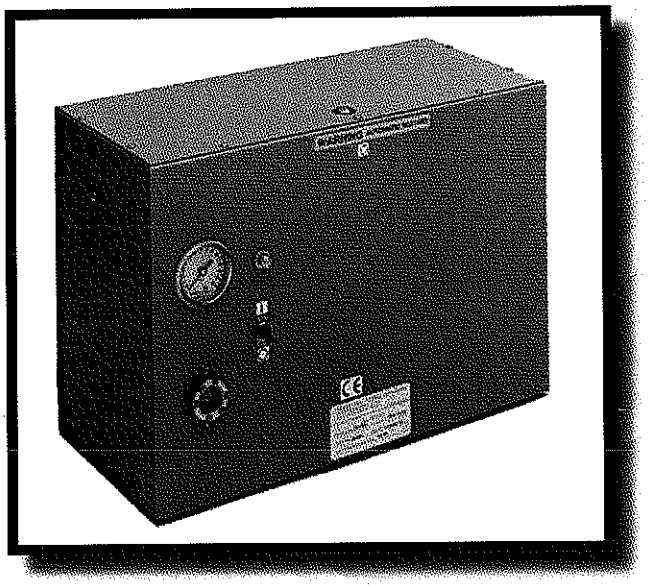
Agency	Classification
RoHS 2002/95/EC	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

* Footnotes

Insertion Loss, typical $0.05\sqrt{\text{freq (GHz)}}$ (not applicable for elliptical waveguide)

Radiodetection
Dielectric Technologies
AN SPX BRAND

Model 300TLS
Air Dryer



115V Model - P/N 66788
230V Model - P/N 66789

The 300TLS heatless compressor dehydrator is specifically designed as an economical pressurization system for coaxial transmission line and waveguide systems. Using a heatless self-regenerating drying system, the 300TLS automatically regenerates the drying media and provides years of trouble free service. The unit is equipped with a visual humidity indicator and a low pressure alarm.

The 300TLS provides up to 300 SCFD of air at a -40° dew point with a selectable output pressure range of 2-15 PSIG and a 4.5 PSIG differential. The tankless design utilizes the volume of the coax or waveguide as the storage vessel and can be equipped with panel mounting brackets or a .4 cubic foot storage tank (optional).

The reliable 1/8 HP oilless compressor is available for application in 115V/50-60Hz as well as 230V/50-60Hz environments. This compressor requires minimal maintenance that can be performed on-site and will provide years of service.

SPECIFICATIONS

CHARACTERISTICS	Model 300TLS
Normal Capacity	200 SCFD (160 SCFD @ 50Hz)
Maximum Capacity	300 SCFD (240 SCFD @ 50Hz)
Dew Point	-40°F (-40°C)
Operating Voltage	115V/60-50Hz, 230V/60-50Hz
Operating Amps	1.0 Amps (230V), 2.0 Amps (115V)
Circuit Protection (manual reset) Compressor	1.25 Amp (230V), 5 Amp (115V)
Width	1/8 H.P.
Height	17.0 Inches
Depth	12.0 Inches
Weight	8.0 Inches
Air Outlet	34 lbs.
	1/4" NPT Fitting

Bridgton Commerce Center, RR#2 Box 756, Bridgton, Maine 04009
Phone: (207) 647-9495 Toll Free: 1-877-247-3797 Fax: (207) 647-9496 Email: rd.sales.us@spx.com

Specialists in Cable Pressurization

SPX
COMMUNICATION TECHNOLOGY

PROJECT REFERENCES

Madison, WI Community Tower Project
Stage 1 – NTSC Antennas/Lines
Stage 2 – DTV Conversion -
Greg Hyer
Associate Director, University of Wisconsin Research Park
608-262-3677

Sinclair Broadcasting Group
DTV Conversion Project
Harvey Arnold, Director of Engineering
WMSN/WISC Stack redesign in process for WMSN, Madison, WI
410-568-1526

Mount Sutro DTV Conversion Project
San Francisco, California
10 Stations – Antenna/Line/Combining
Eric Dausman, Site Manager
415-681-8850

NBC Television
DTV Conversion Project,
Recent stack WCAU/WYBE Philadelphia, PA
Doug Lung , Principal Engineer, NBC Technology
818-334-4034

CBS Television
DTV Conversion Project
John Byrne
Recent Denver Multi-Station Master Antenna System
Director, CBS Stations Engineering Liaison
212-975-7015

WOFL-TV (Fox) Orlando, FL
Flexible Swtiching/Filtering System for Aux Transmitters
Robert Fusco, Director of Engineering
407-741-5140

ABC Television
DTV Conversion Project
10 Stations
David Converse,
Vice President Engineering
818-460-6342

Fox Television
DTV Conversion Project
Earl Arbuckle, Vice President Engineering
201-330-2220

The E.W.Scripps Co. - Scripps Howard Broadcasting
DTV Conversion Project
Mike Doback, VP Engineering
248-827-9490

Hearst-Argyle Television
DTV Conversion Project
Marty Faubell
Vice President Engineering
212-887-6826

Tribune Local TV Broadcasting
DTV Conversion Project
Bill VanDuynhoven, Manager, RF Projects Engineering
770-995-1176

Mount Wilson DTV Conversion Project
Los Angeles, CA
5 Stations – Antennas/Lines
ABC, CBS, NBC, Tribune, Young

Sears Building – Chicago, IL
Triple Stack Antenna Design (3 Stations)
ABC, NBC, Newsweb
Kal Hassan – WLS/ABC 312-750-7747

John Hancock Building – NTSC/DTV Conversion
Chicago, IL
UHF DTV Antenna / Channels 2 & 3 (CBS) Antennas

SPX

COMMUNICATION TECHNOLOGY

DTV Antenna
USERS LIST

Call Letters	Location	Type	Date
WCPB	Salisbury, MD	TUP-04-16-1	Oct-94
KUPX	Ogden, UT	TUP-SP2-12-1	Jan-97
WNDU	South Bend, IN	TUP-04-8-1	Jun-97
KYVE	Yakima, WA	TUP-04-8-1	Jul-97
KOMO	Seattle, WA	TFU-32DSC	Sep-97
WSB	Atlanta, GA	TFU-30DSC-R	Sep-97
WGTE	Toledo, OH	TFU-28GTH-R	Oct-97
WKOW	Madison, WI	TFU-30GTH-R	Nov-97
KXAS	Forth Worth, TX	TFU-30GTH-R	Dec-97
WCBS	New York, NY	TAD-16UDASP	Dec-97
KXTX	Dallas, TX	TFU-30GBH-R	Jan-98
WFAA	Dallas, TX	TW-7B9-R	Feb-98
KHOU	Houston, TX	TFU-28GBH-R	Mar-98
WBTV	Charlotte, NC	TFU-24GTH-R	Mar-98
WTHR	Indianapolis, IN	TFU-18DSC-R	Apr-98
KING	Seattle, WA	TFU-30DSC-R	May-98
WXIA	Atlanta, GA	TW-7B10-R	May-98
KABC	Los Angeles, CA	TFU-22DSC-R	Jun-98
KXLT	Rochester, MN	TUP-C2-6-1	Jun-98
WHSH	Marlborough, MA	TFU-10DSC-R	Jun-98
WBNS	Columbus, OH	TFU-18DSC-R	Jul-98
WHDH	Boston, MA	TFU-28GBH-R	Jul-98
WCVB	Boston, MA	TLP-16M (C)	Aug-98
KIRO	Seattle, WA	TFU-32DSC	Sep-98
KYW	Philadelphia, PA	TFU-30GBH-R	Sep-98
WKYC	Cleveland, OH	TF-2CL	Sep-98
WPVI	Philadelphia, PA	TFU-30GTH-R	Sep-98
KBHK	San Francisco, CA	TUP-C3-8-1	Oct-98
KBWB	San Francisco, CA	TUP-C3-8-1	Oct-98
KCBS	Los Angeles, CA	TFU-18DSC-R	Oct-98
KCNS	San Francisco, CA	TUP-C3-8-1	Oct-98
KCOP	Los Angeles, CA	TFU-36DSC-R	Oct-98
KGO	San Francisco, CA	TUP-C3-8-1	Oct-98
KMTP	San Francisco, CA	TUP-C3-8-1	Oct-98
KNBC	Los Angeles, CA	TFU-18GTH/VP-R	Oct-98
KPIX	San Francisco, CA	TUP-C3-8-1	Oct-98
KPST	San Francisco, CA	TUP-C3-8-1	Oct-98

KQED	San Francisco, CA	TUP-C3-8-1	Oct-98
KRON	San Francisco, CA	TUP-C3-8-1	Oct-98
KTLA	Los Angeles, CA	TFU-12DSC/CP-R	Oct-98
KTVU	San Francisco, CA	TUP-C3-8-1	Oct-98
WATL	Atlanta, GA	TFU-18GBH-R	Oct-98
WCAU	Philadelphia, PA	TLP-16A	Oct-98
WETA	Washington, DC	TFU-8JSC-R	Oct-98
WGNX	Atlanta, GA	TFU-18GTH-R	Oct-98
WJLA	Washington, DC	TUP-04-12-2	Oct-98
WMUR	Manchester, NH	TFU-24JTH-R	Oct-98
WRC	Washington, DC	TFU-26GTH-R	Oct-98
WTNH	New Haven, CT	THP-O-2-1-R	Oct-98
WUSA	Washington, DC	TUP-04-12-2	Oct-98
KCAL	Los Angeles, CA	TAD-16UDA	Nov-98
KFMB	San Diego, CA	TFU-30DSC	Nov-98
KWPX	Bellevue, WA	TFU-31ETT-R	Nov-98
WDIV	Detroit, MI	TFU-18DSC-R	Dec-98
WISH	Indianapolis, IN	TW-7B9-R	Dec-98
WTAE	Pittsburgh, PA	TLP-16I (C)	Dec-98
WXYZ	Detroit, MI	TFU-30DSC-R	Dec-98
KCTS	Seattle, WA	TFU-24GTH-R	Jan-99
WPLG	Miami, FL	THP-O-2-1-R	Jan-99
WVEC	Hampton, VA	TFU-30GBH-R	Feb-99
KFOR	Oklahoma City, OK	TFU-30GTH-R	Mar-99
KGW	Portland, OR	TFU-24GBH-R	Mar-99
KMOV	St. Louis, MO	TFU-24GBH-R	Mar-99
WTVS	Detroit, MI	TFU-18GTH-R	Mar-99
WWJ	Detroit, MI	TFU-18GBH-R	Mar-99
KCRA	Sacramento, CA	TUP-03-1-1	Apr-99
KPRC	Houston, TX	TFU-26GTH-R	Apr-99
KHWB	Houston, TX	TFU-18DSC-R	May-99
KPTV	Portland, OR	TFU-28GBH-R	May-99
KSBI	Oklahoma City, OK	TFU-30GBH-R	May-99
WCBB	Augusta, ME	TUP-C3-2-1	May-99
WCPO	Cincinnati, OH	TBF-3CH	May-99
WRTV	Indianapolis, IN	TFU-30GTH-R	May-99
KGTV	San Diego, CA	TFU-30DSC-R	Jun-99
KPDX	Vancouver, WA	TFU-32GTH/VP-R	Jun-99
WCNC	Charlotte, NC	TFU-22DSC-R	Jun-99
WMVS	Milwaukee, WI	THV-6A8-R	Jun-99
WUND	Columbia, NC	TFU-30GTH-R	Jun-99
KICU	San Jose, CA	TFU-18DSC-R	Jul-99
KOPB	Portland, OR	TFU-24GBH-R	Jul-99
KPHO	Phoenix, AR	TFU-26DSC	Jul-99

WPXI	Pittsburgh, PA	TFU-30GBH-R	Jul-99
KARE	Minneapolis, MN	TAD-32UDA	Aug-99
KDKA	Pittsburgh, PA	TFU-26GTH-R	Aug-99
KMSP	Minneapolis, MN	TAD-32UDA	Aug-99
KMWB	Minneapolis, MN	TAD-32UDA	Aug-99
KSTP	Minneapolis, MN	TAD-32UDA	Aug-99
KTCA	Minneapolis, MN	TAD-32UDA	Aug-99
KTCI	Minneapolis, MN	TAD-32UDA	Aug-99
KTRK	Houston, TX	TFU-30DSC-R	Aug-99
WCCB	Charlotte, NC	TFU-10DSC-R	Aug-99
WCCO	Minneapolis, MN	TAD-32UDA	Aug-99
WEWS	Cleveland, OH	TFU-28GBH-R	Aug-99
WLIW	Plainvew, NY	TFU-26GTH-R	Aug-99
WNCN	Raleigh, NC	TFU-28GTH/VP-R	Aug-99
WSOC	Charlotte, NC	TUP-04-12-1	Aug-99
KNSD	San Diego, CA	TFU-10DSC	Sep-99
KSDK	St. Louis, MO	TWSC-22	Sep-99
WBAL	Baltimore, MD	TFU-20GTH-R	Sep-99
WJZ	Baltimore, MD	TFU-20GTH-R	Sep-99
WMAR	Baltimore, MD	TFU-20GTH-R	Sep-99
WOIO	Cleveland, OH	TAC-4HB	Sep-99
WTVD	Durham, NC	TFU-36GTH-R	Sep-99
WXIN	Indianapolis, IN	TFU-30DSC-R	Sep-99
KMSP	Minneapolis, MN	TUP-SP4-12-1	Oct-99
KNXV	Phoenix, AZ	TFU-18DSC	Oct-99
KOAC	Corvallis, OR	TFU-24GBH-R	Oct-99
KSTP	Minneapolis, MN	TLP-16B (C)	Oct-99
KTXL	Sacramento, CA	TFU-30DSC-R	Oct-99
KXTV	Sacramento, CA	TFU-30GBH-R	Oct-99
WFLA	Tampa, FL	TCL-6A7 (S)	Oct-99
WFTS	Tampa, FL	TFU-16GTH	Oct-99
WNBC	New York, NY	TUP-SP4-8-1	Oct-99
WOFL	Lake Mary, FL	TFU-28DSC-R	Oct-99
KDIN	Des Moines, IA	TFU-30GBH-R	Nov-99
KPNX	Mesa, AZ	TFU-26GBH	Nov-99
KUTP	Phoenix, AZ	TFU-20DSC	Nov-99
WHO	Des Moines, IA	TFU-30GTH-R	Nov-99
WMPT	Annapolis, MD	TFU-30GBH-R	Nov-99
WQOW	Eau Claire, WI	TUP-SP4-8-1	Nov-99
KDAF	Dallas, TX	TFU-26GTH-R	Dec-99
KHTV	Houston, TX	TFU-18DSC-R	Dec-99
KOVR	Sacramento, CA	TFU-22GBH-R	Dec-99
KTXA	Dallas, TX	TFU-24GTH-R	Dec-99
WAVY	Portsmouth, VA	TFU-30GBH-R	Dec-99

WCAU	Philadelphia, PA	TFU-30GBH/VP-R	Dec-99
WDSE	Duluth, MN	TFU-24GBH-R	Dec-99
WKBD	Detroit, MI	TFU-24DSC-R	Dec-99
WSPA	Spartansburg, SC	TFU-26GBH-R	Dec-99
KCET	Los Angeles, CA	TFU-10DSC-R	Jan-00
KLFY	Lafayette, LA	TAD-24UDE	Jan-00
KPXD	Arlington, TX	TFU-22DSC-R	Jan-00
KWHY	Los Angeles, CA	TFU-10DSC-R	Jan-00
WBFF	Baltimore, MD	TUP-C3-4-1	Jan-00
WCYB	Bristol, VA	TLP-16M (C)	Jan-00
WXIX	Newport, KY	TFU-14GBH-R	Jan-00
KHSX	Dallas, TX	TFU-30DSC-R	Feb-00
KWHY	Los Angeles, CA	TFU-26GTH-R S180	Feb-00
WFSB	Hartford, CT	TLP-16A	Feb-00
WITF	Harrisburg, PA	TWS-24LP/O	Feb-00
WPXD	Ann Arbor, MI	TUP-O5-16-1	Feb-00
WRDW	North Augusta, GA	TWSCF-28/SM	Feb-00
WVPX	Akron, OH	TFU-28DSC-R	Feb-00
KCPQ	Seattle, WA	TFU-18DSC-R	Mar-00
KDNL	St. Louis, MO	TFU-30GBH-R	Mar-00
KLAS	Las Vegas, NV	TAB-12H-M	Mar-00
KMWB	Minneapolis, MN	TFU-36DSC-R	Mar-00
KPXE	Kansas City, MO	TFU-24GTH-R	Mar-00
WAOW	Wausau, WI	TFU-20GTH-R	Mar-00
WCTI	New Bern, NC	TLP-16M (C)	Mar-00
WMPN	Jackson, MS	TFU-20GTH-R	Mar-00
WPGH	Pittsburgh, PA	TFU-20DSC-R	Mar-00
WTLV	Jacksonville, FL	TF-2CH (S)	Mar-00
WBZ	Boston, MA	TAD-24UDA	Apr-00
WGBH	Boston, MA	TAD-24UDA	Apr-00
WHYY	Wilmington, DE	TLP-16J SP (C)	Apr-00
WLPB	Baton Rouge, LA	TFU-10DSC-R	Apr-00
WLS	Chicago, IL	TFU-12GBH-R	Apr-00
WLVT	Allentown, PA	TLP-8H	Apr-00
WMAQ	Chicago, IL	TFU-12GBH-R	Apr-00
WPBT	Miami, FL	TFU-24GTH	Apr-00
WPWR	Gary, IN	TFU-16DTC-R DC	Apr-00
WPXW	Manassas, VA	TUP-O5-16-1	Apr-00
WRLK	Columbia, S.C	888-24	Apr-00
WUTF	Boston, MA	TAD-24UDA	Apr-00
KMOS	Sedalia, MO	TFU-30GTH-R	May-00
WBOC	Salisbury, MD	TUP-P4SP-8S-1	May-00
WFLX	Palm Beach, FL	TFU-31ETT	May-00
WFTV	Orlando, FL	TFU-30GTH	May-00

WHIO	Dayton, OH	TFU-12DSC-R	May-00
WHRM	Wausau, WI	TFU-18GTH	May-00
WKMG	Orlando, FL	TFU-30GTH	May-00
WMVT	Milwaukee, WI	TFU-18GTH-R	May-00
WNJX	Puerto Rico	TFU-30JSC-R	May-00
WNWO	Toledo, OH	TLP-32M(C)	May-00
WRDQ	Orlando, FL	TFU-12GBH	May-00
WWBT	Richmond, VA	TFU-24DSC-R O4	May-00
KAID	Boise, ID	TAD-28UDC	Jun-00
KBCI	Boise, ID	TAD-28UDC	Jun-00
KIVI	Boise, ID	TAD-28UDC	Jun-00
KNVA	Austin, TX	TFU-30GTH-R	Jun-00
KTTC	Rochester, MN	TFU-28DSC-R	Jun-00
KTXH	Houston, TX	TFU-24GTH-R	Jun-00
KXAN	Austin, TX	TFU-24GTH-R	Jun-00
WCSC	Charleston, SC	TUP-C3-10-1	Jun-00
WEDU	Tampa, FL	TUP-O5-12-1	Jun-00
WENH	Durham, NH	TUP-O4-6-1	Jun-00
WGCU	Ft. Meyers, FL	TLP-16B	Jun-00
WHAS	Louisville, KY	TFU-26DSC-R	Jun-00
WTOG	Tampa, FL	TUP-O5-12-1	Jun-00
WUPA	Atlanta, GA	TFU-32GTH-R	Jun-00
WVIA	Scranton, PA	TLP-24A	Jun-00
WESH	Daytona Beach, FL	THV-11A11	Jul-00
WFOR	Miami, FL	TFU-22GBH	Jul-00
WPXA	Rome, GA	TFU-16GTH-R	Jul-00
KPXF	Porterville, CA	TFU-10DSC-R	Aug-00
WBUI	Decatur, IL	TFU-31ETT-R	Aug-00
WISC	Madison, WI	TFU-24GBH-R	Aug-00
WKOW	Madison, WI	TFU-14DSC-R	Aug-00
WPHA	Atlantic City, NJ	TUP-SP4-16S	Aug-00
WPXV	Norfolk, VA	TFU-26DSC-R	Aug-00
WRBW	Orlando, FL	TFU-30GTH	Aug-00
WWL	New Orleans, LA	TFU-24GTH	Aug-00
KAET	Tempe, AZ	TFU-30GBH	Sep-00
KPBS	San Diego, CA	TFU-18GTH-R	Sep-00
KSAT	San Antonio, TX	TFU-30DSC	Sep-00
KSMO	Kansas City, MO	TFU-30GTH-R	Sep-00
KTBS	Shreveport, LA	TFU-30GTH	Sep-00
KUWB	Ogden, UT	TUA-T3-12	Sep-00
KYTV	Springfield, MO	TFU-24GTH-R	Sep-00
WBBJ	Jackson, TN	TFU-30DSC-R	Sep-00
WHA	Madison, WI	TFU-28GBH-R	Sep-00
WHRO	Hampton, VA	TFU-24GBH-R	Sep-00

WJXT	Jacksonville, FL	TFU-30GTH	Sep-00
WMSN	Madison, WI	TF-2CH	Sep-00
WOLO	Columbia, SC	THV-11A8	Sep-00
WRSP	Springfield, IL	TFU-28DSC-R	Sep-00
WSBT	South Bend, IN	TUA-O4-8/32H	Sep-00
WTVZ	Norfolk, VA	TFU-20DSC-R	Sep-00
KWCV	Wichita, KS	TFU-30GTH-R	Oct-00
WAOM	Moorehead, KY	TFU-18DSC-R	Oct-00
WBZL	Miami, FL	TFU-12DSC-R	Oct-00
WCCU	Urbana, IL	TFU-16DSB-M	Oct-00
WGN	Chicago, IL	TFU-24DSC-R	Oct-00
WTKR	Norfolk, VA	TFU-28GTH-R	Oct-00
KFSN	Fresno, CA	THA-C2-2/4	Nov-00
KPXB	Conroe, TX	TF-2CM	Nov-00
WBNG	Johnson City, NY	THA-O6-SP	Nov-00
WCCB	Charlotte, NC	TFU-24DSC	Nov-00
WLNS	Lansing, MI	TUD-O5-12/60	Nov-00
WPXR	Roanoke, VA	TUP-SP4-8S	Nov-00
WVTA	Windsor, VT	TUA-O4-10/40	Nov-00
KHIN	Red Oak, IA	TFU-28GTH-R	Dec-00
KOPX	Oklahoma City, OK	TFU-18GTH-R	Dec-00
KWWL	Waterloo, IA	TLP-24A	Dec-00
WDPX	Vineyard Haven, MA	TUP-C4-6-1	Dec-00
WFTX	Cape Coral, FL	TFU-22DSC-R	Dec-00
WGAL	Lancaster, PA	TFU-30DSC-R	Dec-00
WHPX	New London, CT	TFU-18DSC-R	Dec-00
WIVB	Buffalo, NY	TFU-30GTH	Dec-00
WKCF	Clermont, FL	TFU-24GTH	Dec-00
WMEC	Quincy, IL	TUA-O4-8/32	Dec-00
WNJT	Trenton, NJ	TUA-O4-12/48H-1-R	Dec-00
WOWK	Huntington, WV	TUP-O5-12/60H-B	Dec-00
WQEC	Quincy, IL	TUA-O4-8/32	Dec-00
WREG	Memphis, TN	TFU-26GTH-R	Dec-00
WSEC	Springfield, IL	TUA-O4-8/32	Dec-00
WKFT	Fayetteville, NC	TFU-24DSC	Jan-01
KASA	Albuquerque, NM	TUD-O5	Feb-01
KASY	Albuquerque, NM	TUD-O5	Feb-01
KDSM	Des Moines, IA	TFU-30GTH-R	Feb-01
KNAT	Albuquerque, NM	TUD-O5	Feb-01
KNME	Albuquerque, NM	TUD-O5	Feb-01
KWBQ	Albuquerque, NM	TUD-O5	Feb-01
WHSL	E. St. Louis, IL	TFU-22DSC-R	Feb-01
WPBF	Tequesta, FL	TFU-22DSC-R	Feb-01
WUPN	Greensboro, NC	TFU-20DSC-R	Feb-01

WXLV	Winston-Salem, NC	TFU-26DSC-R	Feb-01
KBME	Bismark, ND	TFU-18DSC-R	Mar-01
KNOE	Monroe, LA	THA-O6-3H/18HD	Mar-01
KRCA	Riverside, CA	TFU-24DSC-R	Mar-01
KTXS	Abilene, TX	TLP-16I	Mar-01
KWTX	Waco, TX	TFU-30DSC-R	Mar-01
WAIQ	Montgomery, AL	888-32	Mar-01
WDSU	New Orleans, LA	TFU-30GTH	Mar-01
WEAU	Eau Claire, WI	TFU-34DSC-R	Mar-01
WKRN	Nashville, TN	TUA-O4-15/60H-1-T	Mar-01
WNPT	Nashville, TN	TUA-O4-15/60H-1-T	Mar-01
WUAB	Lorain, OH	TUA-C4-16/64U-T-R	Mar-01
WABI	Bangor, ME	TFU-36GTH-R	Apr-01
WCWB	Pittsburgh, PA	TFU-18JTT-R	Apr-01
WMEB	Orono, ME	THV-6A9-R	Apr-01
WQLN	Erie, PA	888-20	Apr-01
WSMV	Nashville, TN	TW-9B10-R (S)	Apr-01
WTVG	Toledo, OH	TFU-24DSC-R	Apr-01
WWTV	Cadillac, MI	TLP-24B	Apr-01
KJRH	Tulsa, OK	TFU-28DSC-R	May-01
KOTV	Tulsa, OK	TFU-28DSC-R	May-01
WJRT	Flint, MI	TFU-26DSC-R	May-01
WPTD	Dayton, OH	TFU-24DSB	May-01
WPXB	Merrimack, NH	TLP-16J	May-01
WTOV	Steubenville, OH	TFU-16DSB-J (C)	May-01
WXII	Winston-Salem, NC	TFU-30DSC-R	May-01
KALB	Alexandria, LA	TLP-24H	Jun-01
KBSD	Ensign, KS	THB-03	Jun-01
KBSL	Goodland, KS	TLP-8I	Jun-01
KCPT	Kansas City, MO	TFU-26GTH-R	Jun-01
KCRG	Cedar Rapids, IA	TUD-O5-12/60H-B	Jun-01
KENS	San Antonio, TX	TFU-28GBH-R	Jun-01
KFVS	Cape Girardeau, MO	TFU-24DSB-A	Jun-01
KLTS	Shreveport, LA	TLP-8D	Jun-01
KONG	Seattle, WA	TFU-24DSB-I	Jun-01
KRIN	Waterloo, IA	TUD-O5-12/60H-B	Jun-01
KTVB	Boise, ID	TFU-24DSB-I	Jun-01
KTWB	Seattle, WA	TFU-20GTH-R	Jun-01
KVAL	Eugene, OR	TLP-16M (C)	Jun-01
WASV	Asheville, NC	TFU-24DSB	Jun-01
WBAY	Green Bay, WI	TUD-O5-14/70	Jun-01
WBDT	Dayton, OH	TFU-18DSC-R	Jun-01
WCBI	Columbus, MS	TLP-32I	Jun-01
WEDN	Norwich, CT	TFU-16DSB	Jun-01

WFXG	Augusta, GA	TLP-16M (C)	Jun-01
WMEA	Biddeford, ME	TLP-24M	Jun-01
WPNE	Green Bay, WI	TUD-O5-14/70	Jun-01
WXTX	Columbus, GA	TLP-16M (C)	Jun-01
KMOL	San Antonio, TX	TFU-28GTH-R	Jun-01
KBSH	Hays, KS	TLP-8A	Jul-01
KEPR	Pasco, WA	TLP-16M (C)	Jul-01
KEYC	Mankato, MN	TFU-30DSC-R	Jul-01
KIMA	Yakima, WA	TLP-16M (C)	Jul-01
KIMT	Mason City, IA	TLP-24E (C)	Jul-01
KLEW	Lewiston, ID	TLP-16M	Jul-01
KOTA	Rapid City, SD	THP-S2-1-1-R	Jul-01
KSLA	Shreveport, LA	TFU-16DSB-A	Jul-01
KVBM	St. Paul, MN	TAD-32UDC-5/80	Jul-01
KWCH	Hutchinson, KS	TFU-24DSB	Jul-01
WAFF	Huntsville, AL	TLP-32A	Jul-01
WBBM	Chicago, IL	TDM-2A2	Jul-01
WBTW	Florence, SC	TFU-16DSB	Jul-01
WDBJ	Roanoke, VA	TFU-18GTH-R	Jul-01
WEHT	Evansville, IN	TFU-16DSB	Jul-01
WHP	Harrisburgh, PA	THB-O3-1M/3H-1-R	Jul-01
WUNG	Concord, NC	TFU-30GTH-R	Jul-01
WWPX	Martinsburg, WV	TW-7B12-R	Jul-01
WHNT	Huntsville, AL	TFU-30JBH	Jul-01
KCBY	Coos Bay, OR	TLP-16M	Aug-01
KCNC	Denver, CO	TLP-8G	Aug-01
KCNC	Denver, CO	TUV-24GTH/4MT-R	Aug-01
KIDK	Idaho Falls, ID	TLP-8I	Aug-01
KPIC	Roseburg, OR	TLP-16M	Aug-01
WDEF	Chattanaooga, TN	TLP-16E	Aug-01
WFPX	Fayetteville, NC	TFU-18DSC-R	Aug-01
WHLT	Hattesburg, MS	TLP-8A	Aug-01
WISN	Milwaukee, WI	TFU-26GTH-R	Aug-01
WJBF	Augusta, GA	TLP-8M	Aug-01
WJHL	Johnson City, TN	TLP-16H	Aug-01
WKEF	Dayton, OH	TFU-30GTH-R	Aug-01
WMEM	Mars Hill, ME	881-16	Aug-01
WNEG	Toccoa, GA	TLP-8E	Aug-01
WNTV	Greenville, SC	THA-C3	Aug-01
WQAD	Moline, IL	TFU-30GTH-R	Aug-01
WRGT	Dayton, OH	TFU-26GTH-R	Aug-01
WUNL	Winston-Salem, NC	TLP-16M (C)	Aug-01
WUXP	Nashville, TN	TFU-24DSC-R	Aug-01
WVIZ	Cleveland, OH	TFU-26GBH-R	Aug-01

WXPX	Bradenton, FL	TFU-24GTH	Aug-01
WZTV	Nashville, TN	TFU-18DSC-R	Aug-01
KABY	Aberdeen, SD	TLP-24M (C)	Sep-01
KKPX	San Jose, CA	TFU-20DSC-R	Sep-01
KPLR	St. Louis, MO	TFU-30DSC-R	Sep-01
KPRY	Pierre, SD	TLP-24M (C)	Sep-01
WADL	Mt. Clemens, MI	TFU-30DSC-R	Sep-01
WBRA	Roanoke, VA	THA-C4SP-2L/8H	Sep-01
WBXX	Crossville, TN	TFU-24DSC-R	Sep-01
WEYI	Saginaw, MI	TFU-16DSB-A	Sep-01
WFWA	Ft. Wayne, IN	TFU-28GTH-R DC	Sep-01
WFYI	Indianapolis, IN	TLP-16I	Sep-01
WGME	Portland, ME	TFU-30DSC-R	Sep-01
WJAC	Johnstown, PA	TFU-24DSC-R	Sep-01
WJWB	Jacksonville, FL	TLP-24M	Sep-01
WKLE	Lexington, KY	TLP-24B	Sep-01
WLFL	Raleigh, NC	TFU-30GTH-R	Sep-01
WLYH	Lancaster, PA	TFU-24DSB-W	Sep-01
WMSY	Marion, VA	TLP-16A	Sep-01
WMTW	Poland Spring, ME	TFU-24DSB-C170	Sep-01
WMTW	Poland Spring, ME	TUA-C3-2/6U	Sep-01
WPBN	Traverse City, MI	TLP-24M (C)	Sep-01
WQTO	Ponce, PR	TFU-22DSC	Sep-01
WRDC	Raleigh, NC	TFU-30GBH-R	Sep-01
WSBN	Norton, VA	TLP-16A	Sep-01
WUNE	Linville, NC	TFU-24DSC-R	Sep-01
WUNK	Greenville, NC	TLP-16	Sep-01
WUNU	Lunberton, NC	TFU-30GTH-R	Sep-01
KAME	Reno, NV	TLP-8C	Oct-01
KOAT	Albuquerque, NM	TFU-18GTH-R	Oct-01
KOLD	Tucson, AZ	TUA-C3-12/36H	Oct-01
KVOA	Tucson, AZ	TUA-C3-12/36H-1-R	Oct-01
WATL	Atlanta, GA	TUD-O5-14/70U	Oct-01
WIWB	Suring, WI	TFU-16DSB-E	Oct-01
WKGB	Bowling Green, KY	TLP-16B	Oct-01
WKMJ	Louisville, KY	TLP-16B	Oct-01
WKMR	Clearfield, KY	TLP-16B	Oct-01
WKON	Owentown, KY	TLP-16B	Oct-01
WKSO	Somerset, KY	TLP-24B	Oct-01
WTBS	Atlanta, GA	TUD-05-14/7OU	Oct-01
WTVK	Naples, FL	TFU-30DSC-R	Oct-01
WUNC	Chapel Hill, NC	TFU-30DSC-R	Oct-01
WUNF	Asheville, NC	TFU-16DSB-M	Oct-01
WWMB	Florence, SC	TFU-30DSC-R DC	Oct-01

KHNE	Hastings, NE	TFU-30GTH-H DC	Oct-01
WKHA	Hazard, KY	TLP-16B	Oct-01
KCWE	Kansas City, MO	TFU-30GTH-R	Nov-01
KMBC	Kansas City, MO	THV-11A7-R	Nov-01
KPXM	St. Cloud, MN	TFU-18DSC-R	Nov-01
KPXR	Cedar Rapids, IA	TFU-18DSC-R	Nov-01
KTPX	Okumulgee, OK	TFU-24DSC-R	Nov-01
WCVN	Covington, KY	TLP-16B	Nov-01
WFRV	Green Bay, WI	TUD-C5SP-14/70H	Nov-01
WJTV	Jackson, MS	TLP-24J	Nov-01
WKAS	Ashland, KY	TLP-16B	Nov-01
WKMA	Nortonville, KY	TLP-24B	Nov-01
WKMU	Murray, KY	TLP-16B	Nov-01
WKOH	Owensboro, KY	TLP-16B	Nov-01
WKPI	Pikeville, KY	TLP-16C	Nov-01
WKRG	Mobile, AL	TFU-24DSB-C	Nov-01
WKZT	Elizabethtown, KY	TLP-16B	Nov-01
WLED	Littleton, NH	TFU-28GTH-R DC	Nov-01
WLOS	Asheville, NC	TFU-16DSB-M (C)	Nov-01
WLPX	Charleston, WV	TFU-24DSC-R	Nov-01
WMFE	Orlando, FL	TFU-30DSC	Nov-01
WMOR	Lakeland, FL	TFU-30GBH	Nov-01
WOPX	Melbourne, FL	TFU-30DSC-R	Nov-01
WPBA	Atlanta, GA	TFU-24JTH-R	Nov-01
WPNE	Green Bay, WI	TUD-C5SP-14/70H	Nov-01
WPXH	Gadsden, AL	TFU-18DSC-R	Nov-01
WPXK	Jellico, TN	TLP-8 C170	Nov-01
WPXX	Memphis, TN	TFU-28DSC-R	Nov-01
WRPX	Rocky Mount, NC	TFU-18DSC-R	Nov-01
WTVQ	Lexington, KY	TLP-16D	Nov-01
WUNP	Roanoke Rapids, NC	TLP-16B	Nov-01
WVUT	Vincennes, IN	TLP-8E	Nov-01
WZPX	Battle Creek, MI	TFU-18DSC-R	Nov-01
WMPT	Annapolis, MD	TFU-24GTH-R	Nov-01
WUNM	Jacksonville, NC	TFU-30DSC	Nov-01
KASW	Phoenix, AZ	TFU-24DSB-H	Dec-01
KPPX	Tolleson, AZ	TFU-28GTH	Dec-01
KRQE	Albuquerque, NM	TFU-18DSB	Dec-01
KTVK	Phoenix, AZ	TFU-24DSB-H	Dec-01
KXII	Sherman, TX	TFU-30DSC-R	Dec-01
WBPX	Boston, MA	TLP-24C	Dec-01
WCSH	Portland, ME	TFU-28DSC-R	Dec-01
WCYB	Bristol, VA	TFU-24GTH-R	Dec-01
WDAM	Laurel, MS	TLP-24M(C)	Dec-01

WDTN	Dayton, OH	TFU-30GTH-R	Dec-01
WFMJ	Youngstown, OH	TFU-26DSC	Dec-01
WFMY	Greensboro, NC	TFU-30GTH-R	Dec-01
WHEC	Rochester, NY	TFU-16DSB-H	Dec-01
WJPX	San Juan, PR	TFU-22DSC-R	Dec-01
WLTX	Columbia, SC	TFU-26DSC-R	Dec-01
WNAC	Providence, RI	TFU-24DSC-R	Dec-01
WPXU	Jacksonville, NC	TFU-30DSC-R	Dec-01
WUPW	Toledo, OH	TFU-24DSC-R	Dec-01
WGGB	Springfield, MA	TFU-20GTH	Dec-01
WKPD	Paducah, KY	TLP-16B	Dec-01
WLBZ	Bangor, ME	TFU-32DSB-B	Dec-01
WNEP	Scranton, PA	TFU-24GTH-R	Dec-01
KHBC	Hilo, HI	TUA-S1-1/1U-1	Jan-02
WATE	Knoxville, TN	TUD-O5-16/80H	Jan-02
WEIQ	Mobile, AL	TFU-30GTH	Jan-02
WKOP	Knoxville, TN	TUD-O5-16/80H	Jan-02
WPDE	Florence, SC	TFU-30GTH-R	Jan-02
WPSX	University Park, PA	TFU-34GTH-R	Jan-02
WTNZ	Knoxville, TN	TUD-O5-16/80H	Jan-02
WVBT	Virginia Beach, VA	TFU-26DSC-R	Jan-02
WVLT	Knoxville, TN	TUD-O5-16/80H	Jan-02
KCTV	Kansas City, MO	TFU-16DSB-A	Feb-02
KGIN	Grand Island, NE	TFU-30DSC-R	Feb-02
KHBS	Ft. Smith, AR	TFU-18DSC-R	Feb-02
KOLN	Lincoln, NE	TFU-30DSC-R	Feb-02
KSTW	Tacoma, WA	TLP-8B	Feb-02
KTVO	Kirkville, MO	TFU-24DSB-M	Feb-02
WABM	Birmingham, AL	TFU-26DSC-R	Feb-02
WAND	Decatur, IL	TFU-18DSC-R	Feb-02
WAPA	San Juan, PR	TFU-30DSC-R	Feb-02
WAPT	Jackson, MS	TFU-24DSC	Feb-02
WBNS	Columbus, OH	TFU-26GTH-R	Feb-02
WCMH	Columbus, OH	TFU-26GBH-R	Feb-02
WIAT	Birmingham, AL	TFU-30GTH-R	Feb-02
WLFI	Lafayette, IN	TW-7B11-R	Feb-02
WMBB	Panama City, FL	TLP-24M	Feb-02
WNPX	Nashville, TN	TLP-16M (C)	Feb-02
WOTV	Battle Creek, MI	TFU-24GTH-R	Feb-02
WRBL	Columbus, GA	TLP-16M	Feb-02
WSAV	Savannah, GA	TLP-16B	Feb-02
WTHR	Indianapolis, IN	TFU-30DSC-R	Feb-02
WTTO	Birmingham, AL	TFU-24GTH-R	Feb-02
WVTM	Birmingham, AL	TFU-30DSC-R	Feb-02

WYFF	Greenville, SC	TFU-30DSC	Feb-02
KBMT	Beaumont, TX	TLP-16A	Mar-02
KCCI	Des Moines, IA	TFU-34DSC-R	Mar-02
KFOX	El Paso, TX	TFU-24GTH-R	Mar-02
KNAZ	Flagstaff, AZ	TFU-24DSB-B	Mar-02
KTHV	Little Rock, AR	TF-8HT-HDC	Mar-02
KUSI	San Diego, CA	TLP-16C	Mar-02
KXAM	Austin, TX	TFU-30DSC-R	Mar-02
WAWS	Jacksonville, FL	TUC-P5-12/60	Mar-02
WBIQ	Birmingham, AL	TLP-24A	Mar-02
WETA	Washington, DC	TFU-28GTH-R	Mar-02
WFSG	Panama City, FL	TLP-24A (C)	Mar-02
WGRZ	Buffalo, NY	TFU-18GBH-R	Mar-02
WLRN	Pembroke Park, FL	888-32-BP/20	Mar-02
WNLO	Buffalo, NY	TFU-30DSC-R	Mar-02
WRCB	Chattanooga, TN	THA-C2-1H/2H-1-R	Mar-02
WREX	Rockford, IL	TFU-8DSB-I	Mar-02
WSFX	Wilmington, NC	DL-8	Mar-02
WTOC	Savannah, GA	TFU-24DSB	Mar-02
WVVA	Bluefield, WV	TFU-8DSB-B	Mar-02
WXMI	Grand Rapids, MI	TFU-24DSB-C190	Mar-02
WZZM	Grand Rapids, MI	TFU-32GBH	Mar-02
WGEM	Quincy, IL	TFU-8DSB-B	Apr-02
WJYS	Hammond, IN	TUA-C2-2/4H-1-S	Apr-02
WLVI	Boston, MA	TFU-24DSB-B	Apr-02
WMAZ	Macon, GA	THB-O3-3M/9H-1-R	Apr-02
WMEA	Biddeford, ME	881-24-TM	Apr-02
WPTV	West Palm Beach, FL	TFU-28GTH-R	Apr-02
WRJM	Troy, AL	DL-8	Apr-02
WSEC	Springfield, IL	TFU-24GTH-R	Apr-02
WYBE	Philadelphia, PA	TFU-30DSC-R O4	Apr-02
WYOW	Eagle River, WI	TFU-8DSB-G	Apr-02
WHBF	Rock Island, IL	DL-8	May-02
WMHT	Schenectady, NY	TUD-O5-12/60H	May-02
WOI	Ames, IA	DL-8	May-02
WRGB	Schenectady, NY	TUD-O5-12/60H	May-02
WTEN	Albany, NY	TUD-O5-12/60H	May-02
KCAU	Sioux City, IA	DL-8	May-02
KFME	Fargo, ND	TFU-18DSC-R	May-02
KFSM	Fort Smith, AR	TFU-18GTH-R	May-02
KLKN	Lincoln, NE	DL-8	May-02
WBFS	Miami, FL	TFU-30DSC-R	May-02
WBNA	Louisville, KY	THV-6A8-R S170	May-02
WEDW	Bridgeport, CT	TFU-8DSB-J	May-02

WGNT	Portsmouth, VA	TFU-30DSC-R	May-02
WKYT	Lexington, KY	THV-5A13-R	May-02
WLWT	Cincinnati, OH	TFU-30GBH-R	May-02
WOGX	Ocala, FL	TFU-24DSB-M	May-02
WOOD	Grand Rapids, MI	TW-7B7-R	May-02
WPRV	Fajardo, PR	TFU-8DSB-M	May-02
WSJV	Elkhart, IN	TFU-8DSB-I	May-02
WXOW	LaCrosse, WI	TFU-8DSB-B	May-02
KETC	St. Louis, MO	TFU-24DSB-A (C)	Jun-02
KMTV	Omaha, NE	TFU-30DSC-R	Jun-02
KTWU	Topeka, KS	TFU-26DSC-R	Jun-02
WCDC	Adams, MA	TLP-24B (C)	Jun-02
WNAB	Nashville, TN	TWSC-23C/SM	Jun-02
WNDY	Marion, IN	TFU-30DSC-R	Jun-02
WNEM	Saginaw, MI	TFU-30DSC-R	Jun-02
WOUC	Cambridge, OH	888-16 CI	Jun-02
WPSG	Philadelphia, PA	TFU-26GTH-R	Jun-02
WTIU	Bloomington, ID	TUA-SP4-8/32H	Jun-02
WTVO	Rockford, IL	TFU-26GTH-R O4	Jun-02
WWPB	Hagerstown, MD	TFU-12DSC-R P230	Jun-02
WYMT	Hazard, KY	TW-9B12-R	Jun-02
KISU	Pocatello, ID	TFU-32DSB-B	Jun-02
KTIV	Sioux City, IA	TFU-8DSB-B	Jun-02
WEWB	Albany, NY	TFU-32DSB-R	Jun-02
WOUB	Athens, OH	TUF-O4-10/40H-T-R	Jun-02
WPHL	Philadelphia, PA	TFU-24GTH-R	Jun-02
KUAT	Tucson, AZ	TUA-O4-6/24H	Jul-02
WACH	Columbia, SC	TFU-24DSB-M (C)	Jul-02
WCET	Cincinnati, OH	TFU-26DSC-R	Jul-02
WFIQ	Florence, AL	888-32	Jul-02
WGIQ	Louisville, AL	TFU-36DSC-R	Jul-02
WIPR	San Juan, PR	TFU-30DSC-R	Jul-02
WLEF	Park Falls, WI	TFU-24DSB-A	Jul-02
WLII	San Juan, PR	TFU-16DSB-J	Jul-02
WLWC	New Bedford, MA	TFU-24DSC-R S180	Jul-02
WNED	Buffalo, NY	TUC-O5-16/80H	Jul-02
WORA	Mayaguez, PR	TFU-24DSB-A	Jul-02
WSUR	Ponce, PR	TFU-16DSB-M	Jul-02
KRCR	Redding, CA	TFU-8DSB-C	Jul-02
WTVM	Columbus, GA	TFU-16DSB-M (C)	Jul-02
WDBB	Tuscaloosa, AL	TFU-26ETT-R	Aug-02
WHNS	Asheville, NC	TFU-30DSC CT180SP	Aug-02
WJCT	Jacksonville, FL	TFU-26GBH-06SP	Aug-02
WKAR	E. Lansing, MI	888-32 08	Aug-02

WNPX	Nashville, TN	TFU-18DSC-R	Aug-02
WSAZ	Huntington, WV	TFU-20DSC-R 04	Aug-02
WTVX	Ft. Pierce, FL	TFU-18DSC	Aug-02
WWLP	Springfield, MA	THA-O6SP	Aug-02
KREM	Spokane, WA	TFU-24DSB-H (C)	Aug-02
KRXI	Reno, NV	TFU-24DSB-J	Aug-02
WCBD	Charleston, SC	TLP-8H	Aug-02
WCTX	New Haven, CT	TFU-16DSB-B(C)	Aug-02
WEAR	Pensacola, FL	TFU-28GTH 06SP	Aug-02
KELO	Sioux Falls, SD	TUC-O5-16/80H-1-B	Sep-02
KRRT	San Antonia, TX	TFU-24GTH-R	Sep-02
KVVU	Henderson, NV	TW-9B9-R	Sep-02
WCGV	Milwaukee, WI	TFU-28DSC-R	Sep-02
WLJC	Beattyville, KY	TW-9B7-R	Sep-02
WMAB	Ackerman, MS	TW-7B10-R	Sep-02
WMAH	McHenry, MS	881-32	Sep-02
WMAV	Oxford, MS	881-32	Sep-02
WMED	Calais, ME	TW-7B10-R	Sep-02
WTEV	Jacksonville, FL	TUC-P5-12/60	Sep-02
WVTV	Milwaukee, WI	TFU-24DSB-H(C)	Sep-02
KBIM	Roswell, NM	DL-8	Sep-02
KBJR	Duluth, MN	TFU-20GTH-R	Sep-02
KBSI	Cape Girardeau, MO	DL-8	Sep-02
KFBT	Las Vegas, NV	DL-8	Sep-02
KHON	Honolulu, HI	DL-8	Sep-02
KOCB	Oklahoma City, OK	DL-8	Sep-02
KOKH	Oklahoma City, OK	DL-8	Sep-02
KPTS	Hutchinson, KS	TLP-32A	Sep-02
KSNC	Great Bend, KS	DL-8	Sep-02
KSNG	Garden City, KS	DL-8	Sep-02
KSNT	Topeka, KS	DL-8	Sep-02
KSNW	Wichita, KS	DL-8	Sep-02
KVWB	Las Vegas, NV	DL-8	Sep-02
KVWB	Las Vegas, NV	TUA-C4-12/48	Sep-02
WCHS	Charleston, WV	DL-8	Sep-02
WICD	Champaign, IL	DL-8	Sep-02
WLUC	Marquette, MI	TLP-24M (C)	Sep-02
WMAU	Bude, MS	TFU-28GTH 04	Sep-02
WMMP	Charleston, SC	DL-8	Sep-02
WRAY	Wilson, NC	881-32	Sep-02
WSYT	Syracuse, NY	DL-8	Sep-02
WSYX	Columbus, OH	THB-1/1	Sep-02
WSYX	Columbus, OH	TW-12B13-R	Sep-02
WTAT	Charleston, SC	DL-8	Sep-02

WTHI	Terre Haute, IN	DL-8	Sep-02
WTTE	Columbus, OH	DL-8	Sep-02
WTTE	Columbus, OH	TFU-30GBH-R 08	Sep-02
WUPL	New Orleans, LA	DL-8	Sep-02
WVAH	Charleston, WV	DL-8	Sep-02
WVUE	New Orleans, LA	DL-8	Sep-02
WWHO	Chillicothe, OH	TFU-30DSC-R	Sep-02
KATV	Little Rock, AR	TLP-32E	Oct-02
KETV	Omaha, NE	DL-8	Oct-02
KUAS	Tucson, AZ	TFU-16GBH-R	Oct-02
WAGT	Augusta, GA	TFU-28GTH	Oct-02
WPXE	Kenosha, WI	TFU-18DSC-R	Oct-02
WSKG	Binghamton, NY	888-24	Oct-02
WTTA	St. Petersburg, FL	TFU-20DSB-M (C)	Oct-02
WUHF	Rochester, NY	TFU-24GTH-R	Oct-02
KABB	San Antonia, TX	TFU-30DSC-R	Nov-02
WCHS	Charleston, WV	TFU-24DSB-I (C)	Nov-02
WCML	Alpena, MI	TUF-P4-12/48H-1-T	Nov-02
WCMU	Mount Pleasant, MI	TUF-P4-12/48H-1-T	Nov-02
WCMV	Traverse City, MI	TUF-P4-12/48H-1-T	Nov-02
WCMW	Traverse City, MI	TUF-P4-12/48H-1-T	Nov-02
WGKI	Traverse City, MI	TUF-P4-12/48H-1-T	Nov-02
WGTU	Traverse City, MI	TUF-P4-12/48H-1-T	Nov-02
WVAH	Charleston, WV	TFU-24DSB-I (C)	Nov-02
WCIQ	Mt. Cheaha, AL	TLP-24A	Nov-02
WTTV	Indianapolis, IN	DL-8	Nov-02
KWHB	Tulsa, OK	DL-8	Nov-02
KWHD	Elizabeth, CO	DL-8	Nov-02
WSJK	Knoxville, TN	DL-8	Nov-02
WUNJ	Wilmington, NC	TFU-30GTH-R 04	Nov-02
KLPB	Lafayette, LA	TFU-10DSC C170	Nov-02
WBSC	Anderson, SC	TFU-16DSC-R	Nov-02
WPXP	Lake Worth, FL	TFU-26DSC P230	Nov-02
KUSA	Denver, CO	TLP-8G	Nov-02
KSEE	Fresno, CA	TFU-10DSC-R C170	Nov-02
WJWN	San Sebastian, PR	TLP-24 C250	Nov-02
KVUE	Austin, TX	TFU-29JTH-R 04	Nov-02
KOCO	Oklahoma City, OK	THV-6A7-R C170SP	Dec-02
WBDC	Washington, DC	TFU-30ETT 06	Dec-02
WCEU	Daytona Beach, FL	888-32	Dec-02
WSIU	Carbondale, IL	TUV-32GTH/13HV	Dec-02
KLRU	Austin, TX	TFU-24GTH-R 04	Dec-02
WBFF	Baltimore, MD	TFU-14GTH/VP-R 06 DC	Dec-02
WPSX	Clearfield, PA	TLP-16J	Dec-02

KWHH	Honolulu, HI	DL-8	Dec-02
KMCI	Lawrence, KS	TFU-20DSC-R 2C230	Dec-02
KOKH	Oklahoma City, OK	TFU-30GTH-R 6T170 DC	Dec-02
KSHB	Kansas City, MO	TFU-30DSC-R 4C130 DC	Dec-02
WFSU	Tallahassee, FL	TFU-30GTH 04	Dec-02
WDCP	University Center, MI	TFU-20GTH-R 04	Dec-02
KOCB	Oklahoma City, OK	TFU-30GBH-R 08 DC	Dec-02
KMOH	Kingman, AZ	TFU-24DSB-H	Dec-02
WITN	Washington, NC	TFU-30GTH-R 04	Dec-02
KTUL	Tulsa, OK	THV-5A10-R C170 SM	Dec-02
KBAK	Bakersfield, CA	TFU-18GTH-R 1CT185	Dec-02
KLRN	San Antonia, TX	THV-6A8-C140	Dec-02
KAMU	College Station, TX	THB-O3-1H/3H-1	Jan-03
WCTV	Tallahassee, FL	TFU-30DSC-R O4	Jan-03
WIPB	Muncie, IN	TUA-O4-12/48-1-T	Jan-03
KHRR	Tuscon, AZ	TLP-8M	Jan-03
WPGA	Perry, GA	TLP-16J (C)	Jan-03
KEYE	Austin, TX	TFU-31EBT/VP-R 08	Jan-03
WJFB	Lebanon, TN	TFU-29JTH-R 04	Jan-03
KOED	Tulsa, OK	TFU-33JSC-R 04	Jan-03
KOET	Eufaula, OK	TFU-31JSC-R 04	Jan-03
KZJL	Houston, TX	TFU-30DSC-R C170	Jan-03
WWDP	Norell, MA	TFU-30GTH-R 04	Jan-03
KIFI	Idaho Falls, ID	TF-12HT	Feb-03
KTNW	Richland, WA	TLP-8F	Feb-03
KAMC	Lubbock, TX	DL-8	Feb-03
KARD	West Monroe, LA	DL-8	Feb-03
KDEB	Springfield, MO	DL-8	Feb-03
KHMT	Billings, MT	DL-8	Feb-03
KLBK	Lubbock, TX	DL-8	Feb-03
KOLR	Springfield, MO	DL-8	Feb-03
KSVI	Billings, MT	DL-8	Feb-03
WFFT	Fort Wayne, IN	DL-8	Feb-03
WHAG	Hagerstown, MD	DL-8	Feb-03
WTVW	Evansville, IN	DL-8	Feb-03
KWGN	Denver, CO	TFU-12DSC-R C170	Feb-03
KTXT	Lubbock, TX	TFU-22DSC-R C170	Feb-03
KXRM	Colorado Springs, CO	TFU-12DSB-J	Feb-03
WIPX	Bloomington, IL	TFU-18DSC-R 03	Feb-03
WPXM	Miami, FL	TFU-18DSC P230	Feb-03
KIPT	Twin Falls, ID	TLP-24B (C)	Feb-03
WPPX	Philadelphia, PA	TFU-20DSC-R P230	Feb-03
KMAX	Sacramento, CA	TUG-O5-16/80H-2-B	Mar-03
KCRA	Sacramento, CA	TUG-O5-16/80H-2-B	Mar-03

KVTN	Pine Bluff, AR	TLP-16J	Mar-03
KAPP	Yakima, WA	TFU-24DSB-M	Mar-03
KVEW	Kennewick, WA	TFU-24DSB-H	Mar-03
WTVJ	Miami, FL	TFU-20GTH 04	Mar-03
KCLO	Rapid City, SD	TFU-20GTH-R CT160	Mar-03
WECT	Wilmington, NC	TFU-24DSB-M (C)	Mar-03
KEDT	Corpus Christi, TX	TFU-30DSC-R C170	Mar-03
WBKI	Campbellsville, KY	DL-8	Mar-03
WHTJ	Charlottesville, VA	TFU-16DSB-B (C)	Mar-03
WKPV	Puerto Rico	TLP-32M	Mar-03
WNNE	Hartford, VT	TFU-10DSC-R P230	Mar-03
WNYO	Buffalo, NY	TFU-24DSB-M (C)	Mar-03
WPTO	Oxford, OH	TFU-24DSB-H (C)	Mar-03
WSAW	Wausau, WI	TFU-10GTH-R 4C150	Mar-03
WPTA	Ft. Wayne, IN	TUA-O4-10/40H-1	Apr-03
WNCF	Montgomery, AL	DL-8	Apr-03
WICD	Champaign, IL	TFU-24DSB-I (C)	Apr-03
WICS	Springfield, IL	TFU-24DSB-I (C)	Apr-03
WNPB	Morgantown, WV	881-24	Apr-03
WNJX	Puerto Rico	TLP-8M	May-03
WKBW	Buffalo, NY	TUV-32GTH/10HV-R	May-03
KCGE	Crookston, MN	TFU-16GTH-R C170	May-03
KSRE	Minot, ND	881-24	May-03
WPGX	Panama City, FL	TLS-V	May-03
WTLW	Lima, OH	TLP-24A	May-03
KDUH	Scottsbluff, NE	TW-9B7-R	May-03
WTOM	Cheboygan, MI	TLP-24M	May-03
WJAR	Providence, RI	TFU-24DSB-R	Jun-03
WIPM	Mayaguez, PR	TFU-22GBH	Jun-03
WPXN	New York, NY	TFU-24DSC-R	Jun-03
WDAZ	Devils Lake, ND	DL-8	Jun-03
KFYR	Bismarck, ND	TFU-24DSB-M	Jun-03
WTTK	Kokomo, IN	DL-8	Jun-03
KDSE	Dickinson, NC	881-24	Jun-03
KWSE	Dickinson, NC	881-24	Jun-03
WLJT	Beech Bluff, TN	TLP-12B	Jun-03
WNEO	Alliance, OH	TFU-24DSC-R	Jun-03
WXXI	Rochester, NY	TFU-16DSB-M	Jun-03
KCKA	Tacoma, WA	TLP-12A	Jun-03
KLTL	Kinder, LA	TFU-10DSC C170	Jun-03
KUFM	Missoula, MT	TLP-8I	Jun-03
WNVC	Fairfax, VA	DL-8	Jun-03
WPXN	New York, NY	TVU--20DSB-R S260DC	Jun-03

WSET	Lynchburg, VA	TFU-30DSC-R 04	Jun-03
WTJX	Virgin Islands	TLP-8S180	Jun-03
WPRI	Providence, RI	TF-12HT DC	Jul-03
WLAJ	Lansing, MI	TUF-C4-10/40H-1-T	Jul-03
KSKN	Spokane, WA	TFU-24DSB-E	Aug-03
KSMN	Worthington, MN	TFU-24DSC-R S180	Aug-03
WGVK	Kalamazoo, MI	TF-4MT-H	Aug-03
WVIT	West Hartford, CT	TFU-22GTH/VP-R	Aug-03
WOSU	Columbus, OH	TFU-20GTH-R 04	Aug-03
WNVT	Goldvein, VA	TFU-26GTH-R 04	Aug-03
WPBO	Portsmouth, OH	TFU-26GTH-H 04 DC	Aug-03
KBSI	Cape Girardeau, MO	TFU-26GTH-R 3S220 DC	Sep-03
KTMD	Houston, TX	TFU-24DSB-D	Sep-03
KTSC	Denver, CO	TFU-16DSB-J	Sep-03
KXLF	Butte, MT	TF-6MT DC	Sep-03
WBGU	Bowling Green, OH	TUF-O4-14/56H-1-T-R	Sep-03
WEMT	Greenville, TN	TFU-25ETT-R 3BP250	Sep-03
WGVU	Grand Rapids, MI	TF-8HS-H P200	Sep-03
WMHT	Schenectady, NY	TFU-16DSB-M	Sep-03
WNJN	Montclair, NJ	TFU-16DSB-B	Sep-03
WNPI	Norwood, NY	TFU-16DSB-B R	Sep-03
WPBS	Watertown, NY	TFU-16DSB-B R	Sep-03
WKNO	Memphis, TN	TUV-32GTH/13HV-R 06/03	Sep-03
WTVH	Syracuse, NY	TFU-30GTH-R 04	Sep-03
KLPA	Alexandria, LA	TFU-25ETT-H S200 DC	Sep-03
WDWB	Detroit, MI	TFU-23ETT-R CT3 DC	Sep-03
WCFE	Plattsburgh, NY	TFU-8DSB-M	Oct-03
WANE	Fort Wayne, IN	TLP-8B	Oct-03
KRMJ	Denver, CO	TFU-8DSB-M	Oct-03
WNJS	Southwick, MA	TFU-16DSB-B (C)	Oct-03
WMAE	Booneville, MS	TLP-24A	Nov-03
WNJX	Puerto Rico	TFU-14GTH C170 DC	Nov-03
WRJA	Columbia, SC	TFU-35ETT-H O4 DC	Nov-03
WUFT	Gainesville, FL	TUV-30GTH/4M-R O8/O4	Nov-03
WUTV	Buffalo, NY	TLP-8A-R (S)	Nov-03
WCFT	Hoover, AL	THA-S4-2/8-1-R	Dec-03
WILL	Champaign, IL	TF-12HT-H DC (s)	Dec-03
WPSD	Paducha, KY	TUV-36GTH/4M-R O4/O4	Dec-03
WQED	Pittsburg, PA	888-32	Dec-03
WSAV	Savannah, GA	TUV-28GTH/3L-R	Dec-03
WSBE	Providence, RI	TLP-24D/CP	Dec-03
WYPX	Amsterdam, NY	TFU-18DSC-R S180	Dec-03
WXEL	West Palm Beach, FL	TUA-SP4-12/48H-1-S-R	Dec-03

KSWO	Southlake, TX	TLS-V4-S170	Jan-04
KWES	Odessa, TX	TLS-V4-S170	Jan-04
WFPT	Frederick, MD	TUF-C4SP-6/16-1-T	Jan-04
KSNW	Wichita, KS	TFU-30GTH-R O4	Feb-04
WFSB	Hartford, CT	TFU-26GTH-R 6T130	Mar-04
KPXG	Portland, OR	THP-04-2/8-1-R	Mar-04
WHMC	Conway, SC	THB-O3-3H/9HD-1-R	Mar-04
KTIN	Fort Dodge, IA	TLP-12M	Mar-04
KIIN	Iowa City, IA	TLP-12M	Apr-04
KQIN	Davenport, IA	TLP-12M	Apr-04
KWCM	Appleton, MN	TFU-28DSC-R C170	Apr-04
KYIN	Mason City, IA	TLP-12M	Apr-04
WHTM	Harrisburg, PA	THV-6A10-R S190	Apr-04
WMMP	Charleston, SC	TUD-P5SP-16/48-1-B	Apr-04
WQPX	Scranton, PA	TFU-16DSC-R	Apr-04
KSWB	San Diego, CA	TFU-30GTH/VP-R S180	Apr-04
KUSM	Bozeman, MT	THA-P2-2H/4H	Apr-04
WHIO	Dayton, OH	TFU-28DSC-R CT3	Apr-04
WCBD	Charleston, SC	TUD-P5SP-16/48-1-B	Apr-04
WTTD	Hampton, VA	TLP-4 S254	Apr-04
KSPX	Sacremento, CA	TFU-24DSC-R CT150	Apr-04
WTAT	Charleston, SC	TUD-P5SP-16/48-1-B	Apr-04
KLSB	Ponta, TX	TAD-32UDA-3/48P	May-04
WDKY	Danville, KY	TUA-32DSB/VP-R	May-04
KTOO	Juneau, AL	TF-2HT-H	May-04
WEAO	Akron, OH	TFU-28GTH-R O4 DC	Jun-04
WVIR	Charlottesville, VA	TFU-26GTH-R 04SP	Jun-04
WNAC	Providence, RI	TFU-24DSB-M (S)	Jun-04
WGBA/WACY	Green Bay, WI	TUA-CA-8/32H-1T	Jun-04
WTAE	Pittsburg, PA	TFU-30DSC-R CT150	Jun-04
KRIS	Corpus Christi, TX	TLS-V8	Jun-04
WJHG	Panama City, FL	THB-C3SP-3H/9H-1	Jun-04
WNJU	Teterboro, NJ	DL-12	Jun-04
WMAK	Knoxville, TN	THV-11A7-R C160 SM	Jun-04
KNMD	Santa Fe, NM	TLS-V2-R	Jul-04
WRCB	Chattanooga, TN	THA-SP4-4H/12H-1-RN	Jul-04
WVIZ	Cleveland, OH	DL-12	Jul-04
WRLK	Columbia, SC	TUF-O4-12/48H-1-T	Jul-04
KHNL	Honolulu, HI	TUA-C1-1/1H-1-S	Aug-04
KWAB	Big Spring, TX	TFU-24DSB-I	Aug-04
WBUW	Madison, WI	TUA-O4-10/40H-1-S-R	Aug-04
KHAW	Hilo, HI	DL-8	Aug-04
WNPI	Norwood, NY	TUF-O4-10/40H-1-T	Aug-04

KAVU	Victoria, TX	TUA-04SP-14/55H-1-T-R	Sep-04
KMPX	Decatur, TX	TFU-30DSC-R 4S200 DC	Sep-04
KSTW	Tacoma, WA	TUV-24/8GTH-R SP210/190	Sep-04
WAKA	Selma, AL	TFU-30DSC-R	Sep-04
WBTV	Charlotte, NC	THA-C3SP-2L/6H-1-R	Sep-04
WHDF	Florence, AL	TFU-30DSC-R	Sep-04
WJWN	San Sebastian, PR	TFU-24DSB-M (C) DC	Sep-04
WKPV	Ponce, PR	TFU-24DSB-J (C) DC	Sep-04
WTIN	Ponce, PR	TLP-24C (C) DC	Sep-04
WJPM	Florence, SC	TUF-O4-14/56H-1-T	Sep-04
KXJB	Valley City, ND	TFU-32DSB-M (C)	Sep-04
KVLY	Fargo, ND	TFU-32DSB-J (C)	Sep-04
KETV	Omaha, NE	TFU-28GBH-R O8	Oct-04
KETV	Omaha, NE	TUV-30GTH/14HV-R O6/O3	Oct-04
WDKY	Danville, KY	THB-C3-5M/15H-1-R	Oct-04
WLMB	Toledo, OH	THA-S4SP-2M/8H-1-R	Oct-04
WIRS	Yauco, PR	TFU-24DSB-A DC	Oct-04
WHDF	Florence, AL	DL-8	Nov-04
WNEH	Greenwood, SC	TUF-O4-14/56H-1-T	Nov-04
WTSP	Tampa-St. Petersburg, FL	THV-11A10 C150	Nov-04
WGPT	Oakland, MD	TLP-16M (C)	Dec-04
KPXN	San Bernadino, CA	TFU-26DSC-R C170	Dec-04
WPXQ	Block Island, RI	TFU-15JTH-R C170	Dec-04
WRET	Spartanburn, SC	TUF-O4-14/56H-1-T	Dec-04
KWHB	Tulsa, OK	TFU-24DSC-R C170 DC	Dec-04
WHMB	Indianapolis, IN	TFU-10DSC-R S180	Dec-04
WLAE	Chalmette, LA	TLP-16M (C)	Dec-04
KDBC	El Paso, TX	TFU-12DSC-R C170	Jan-05
KGMD	Hilo, HI	THA-C2-2H/4H-1	Jan-05
WJSU	Anniston, AL	THV-6A9-R S190 SM	Jan-05
KWCH	Hutchison, KS	TFU-30DSC-R O4	Feb-05
WAIQ	Montgomery, AL	TFU-36GTH-R 04	Feb-05
WOUC	Cambridge, OH	TUF-C4SP-7/28HSP-1-T	Feb-05
KBIN	Council Bluffs, IA	TFU-26GTH-R O4	Mar-05
KECY	El Centro, CA	TLP-24N	Mar-05
KESQ	Palm Springs, CA	TFU-16DSB-M	Mar-05
KRDO	Colorado Springs, CO	TFU-16DSB-J	Mar-05
WEBA	Allendale, SC	TUF-C4SP-12/48H-1-T	Mar-05
KCTV	Kansas City, MO	TFU-30DSC-R 4C140	Mar-05
WDEF	Chattanooga, TN	TFU-30DSC-R 04	Mar-05
WDFX	Ozark, AL	TFU-28ETT-R 4C190 DC	Mar-05
WFLI	Cleveland, TN	TFU-30DSC-R C140	Mar-05
WLCB	Leesburg, FL	TFU-27ETT-R 4C220 DC	Mar-05

WSTE	Ponce, PR	THB-C2-3H/6HD-1 DC	Mar-05
WSFJ	Columbus, OH	TFU-21JTT-R 4C140	Apr-05
KAKE	Wichita, KS	TUV-28GTH/10HV-R O6/O3	Apr-05
WSJV	Elkhart, IN	TFU-24DSB-A (SP)	Apr-05
WSLS	Roanoke, VA	TFU-30DSC-R C170	Apr-05
WVER	Rutland, VT	THV-6A9/VP-R C160 SM	Apr-05
WXVT	Greenville, MS	TFU-29JTH 04	Apr-05
KTBC	Austin, TX	TFU-26DSC-R 04	May-05
WCFE	Plattsburgh, NY	TUF-C4SP-5/16H-1-T	May-05
WHBF	Rock Island, IL	TFU-32DSB-R-03	May-05
WOI-DT	Ames, IA	TFU-32DSB-R-03	May-05
KMDE	Devil's Lake, ND	TFU-30GTH-R O4	May-05
WFBD	Destin, FL	TFU-28DSC S200	May-05
WKRG	Mobile, AL	TFU-22GTH-R 4C160	May-05
WSBT	South Bend, IN	TUA-04-16/64H-1-T-R	May-05
KFCT	Denver, CO	TLP-16A C DC	Jun-05
KFXA	Cedar Rapids, IA	TFU-30GTH-R 4P210	Jun-05
KNBC	Mount Wilson, CA	TFU-16DSB-M (C)	Jun-05
KWHD	Elizabeth, CO	TFU-10DSC-R C170	Jun-05
WACX	Orlando, FL	TUD-C5SP-16/64H-2-B	Jun-05
WCJB	Gainesville, FL	TFU-24DSB-O	Jun-05
WFTE	Salem, IN	TUE-05/C5SP-13/65U-3-T	Jun-05
WJHL	Johnson City, TN	TFU-30DSC-R 04	Jun-05
WKPT	Kingsport, TN	TLP-16E	Jun-05
WLEX	Lexington, KY	TFU-30DSC-R 3S/80 DC	Jun-05
WLOS	Asheville, NC	TFU-24DSB-M-R	Jun-05
WSYT	Syracuse, NY	TFU-16DSB-R S180SP	Jun-05
WTVQ	Lexington, KY	TFU-30DSC-R 3S/80 DC	Jun-05
WVUE	New Orleans, LA	TFU-24DSB-M	Jun-05
WVUE	New Orleans, LA	TLP-8B	Jun-05
KDLT	Sioux Falls, SD	TFU-36GTH-R 04	Jun-05
KTLA	Los Angeles, CA	TFU-28DSC/VP-R CT170SP	Jun-05
WBRC	Birmingham, AL	TFU-30DSC-R 04	Jun-05
WDJT	Milwaukee, WI	TFU-23ETT-R CT3	Jun-05
WDRB	Louisville, KY	TFU-32DSB-R 04	Jun-05
WJTV	Jackson, MS	TFU-30DSC-R 04	Jun-05
KGUN	Tucson, AZ	TFU-16DSB-B SP	Jul-05
KPVI	Pocatello, ID	TFU-24JTH-R S260	Jul-05
KPXJ	Shreveport, LA	TFU-26DSC-R S200	Jul-05
WDAF	Kansas City, MO	TFU-28GTH-R 04	Jul-05
WETP	Sneedville, TN	TFU-30GTH-R 06	Jul-05
KHET	Honolulu, HI	TLP-8E	Jul-05
KACB	New Iberia, LA	TFU-31JTH 6T180	Aug-05

KNTV	San Jose, CA	THA-MC2-3H/6H-1	Aug-05
KNTV	San Jose, CA	THV-6A12/VP-R	Aug-05
WITI	Milwaukee, WI	TFU-24JSC/VP-R 4C160	Aug-05
WKBT	LaCrosse, WI	TUV-32GTH/13HV-R 06/03	Aug-05
WINK	Fort Myers, FL	TW-6B9 (S)/TF-8HS	Aug-05
WPBS	Watertown, NY	TFU-04-10/40T-R	Aug-05
KARK	Little Rock, AR	TFU-32DSB-R 03	Sep-05
KNWA	Rogers, AR	TFU-34EST-R 04 DC	Sep-05
KOAA	Pueblo, CO	TFU-16DSB-R C270 SP	Sep-05
WHBQ	Memphis, TN	TFU-34JSC-R 03	Sep-05
WHME	South Bend, IN	TFU-10DSC-R T160	Sep-05
WILX	Lansing, MI	TFU-31JSC-R 04	Sep-05
WMFP	Boston, MA	TFU-30DSC-R C170	Sep-05
WSKC	Atlanta, GA	TLP-12 C380	Sep-05
WTHI	Terre Haute, IN	TLP-24DB	Sep-05
KSNT	Topeka, KS	TFU-26GTH-H 04 DC	Oct-05
WEUX	Chippewa Falls, WI	DL-8	Oct-05
WGHP	High Point, NC	TFU-34DSC-R 04	Oct-05
WNSC	Rock Hill, SC	TUF-C4SP-12/48H-1-T	Oct-05
WNYS	Syracuse, NY	TFU-16DSB-R C170	Oct-05
WSMH	Flint, MI	TFU-8DSB-A-R	Oct-05
WJWJ	Beaufort, SC	TFU-8DSB-A-R	Oct-05
KAUT	Oklahoma City, OK	TFU-30DSC-R 03	Nov-05
KRTV	Great Falls, MT	TLS-V8-R	Nov-05
WFXR	Roanoke, VA	TFU-22JSC-R C180	Nov-05
WGHP	High Point, NC	TFU-2ST-R S190	Nov-05
WKBN	Youngstown, OH	TFU-23JTH-R 04	Nov-05
WOAC	Canton, OH	TFU-28DSC-R C170	Nov-05
WVEN	Leesburg, FL	TFU-24DSB-A	Nov-05
KINC	Las Vegas, NV	TFU-22DSC-R 4S250	Dec-05
KINT	El Paso, TX	TFU-32DSC-R CT310SP	Dec-05
KPAX	Missoula, MT	TF-10HT-H DC	Dec-05
KTVQ	Billings, MT	TF-6HT-H DC	Dec-05
KTXH	Houston, TX	TFU-24WB-R WC	Dec-05
KULR	Billings, MT	TF-6HT-H DC	Dec-05
TV Vanguarda	Sao Jose Campos, Brazil	TUA-O4SP-2/8U-1-T	Dec-05
WFXL	Albany, GA	THV-12A12-R C170	Dec-05
WJWB	Jacksonville, FL	TFU-28GTH-R 6T170	Dec-05
WPXC	Brunswick, GA	TFU-26DSC-R C170	Dec-05
WVEA	Venice, FL	TFU-26DSC-R BP220	Dec-05
WVTB	St. Johnsbury, VT	TUA-04-12/48-1-R-T	Dec-05
WUPV	Ashland, VA	TFU-28JSC-R S200	Jan-06
WXTX	Columbus, GA	TFU-20DSC-R P230	Jan-06

WASV	Asheville, NC	TFU-26GTH-R 04	Feb-06
WJBF	Augusta, GA	TFU-24GTH-R 04	Feb-06
KALB	Alexandria, LA	TFU-30GTH-R 04	Mar-06
KBMT	Beaumont, TX	TLP-24H (C)	Mar-06
KFQX	Grand Junction, CO	TUA-C2-3/6L-1-N	Mar-06
KIII	Corpus Christi, TX	THV-11A8 C135	Mar-06
KREG	Glenwood Springs, CO	TLP-12M	Mar-06
KREX	Grand Junction, CO	THA-04-1/4-1	Mar-06
KREY	Montrose, CO	THA-S4-2/8-1-N	Mar-06
KRSC	Claremore, OK	TFU-29ETT-R S200 DC	Mar-06
KTIV	Sioux City, IA	TFU-30JTH-R 04	Mar-06
KUSI	San Diego, CA	TFU-24GTH-R S180	Mar-06
WBXH	Baton Rouge, LA	TLP-12M	Mar-06
WLTZ	Columbus, GA	TLP-16A (C)	Mar-06
WPME	Lewiston, ME	TLP-16B (C)	Mar-06
WPXT	Portland, ME	TLP-16B-R (C)	Mar-06
WSWG	Valdosta, GA	TLP-16J (C)	Mar-06
WTOK	Meridian, MS	TFU-24DSB-A (C)	Mar-06
WTTV	Indianapolis, IN	TFU-24DSB-R C260	Mar-06
WVCY	Milwaukee, WI	TFU-31JSC-R C170	Mar-06
KAPP	Yakima, WA	TUF-04-12/48H-1-T	Apr-06
KDTP	Phoenix, AZ	TFU-16JSC C165SP	Apr-06
KNSO	Merced, CA	THA-C2-2M/4H	Apr-06
WBTW	Florence, SC	TFU-30DSC-R 4C140	Apr-06
WRBL	Columbus, GA	TFU-30GTH-R 04	Apr-06
WREX	Rockford, IL	TFU-16DSB-C-R	Apr-06
KIIN	Iowa City, IA	TUV-32GTH/14HV-R 06/03	May-06
KQDS	Duluth, MN	TFU-20GTH-R 04	May-06
KTEN	Ada, OK	TFU-32DSB-R 03	May-06
KVOS	Billingham, WA	TFU-31JTH-R 04SP	May-06
KVRR	Fargo, ND	TFU-24DSC-R P290	May-06
WALB	Albany, GA	TFU-24DSB-M (C)	May-06
WCAX	Burlington, VT	TUP-04-10/40H-2-R, TUP-04/8U-1-R	May-06
WGEM	Quincy, IL	TFU-24DSB-B (C)	May-06
WMBB	Panama City, FL	TFU-28DSC C170	May-06
WMBC	Newton, NJ	TFU-16GTH-R 2S350	May-06
WNJN	Montclair, NJ	TFU-30GBH-R 08 DC	May-06
WNYO	Buffalo, NY	TFU-16DSB-R-R	May-06
WPTZ	Plattsburgh, NY	TUP-04-10/40H-2-R, TUP-04/8U-1-R	May-06
WUTV	Buffalo, NY	TFU-16DSB-E-R	May-06
KBLR	Paradise, NV	TLP-16E SP (C)	Jun-06
KDEN	Longmont, CO	TFU-24ETT/VP-R CT220 SP	Jun-06
KFTA	Fort Smith, AR	TFU-24DSB-R CT150 (C)	Jun-06

KIEM	Eureka, CA	TLP-12I	Jun-06
KLUZ	Albuquerque, NM	TFU-19ETT-R P230	Jun-06
KSBY	San Luis Obispo, CA	TFU-22DSC-R BP285	Jun-06
KSMS	Monterey, CA	TFU-24DSB-R 3BP290SP	Jun-06
KSTU	Salt Lake City, UT	TFU-12JTH-R CT220	Jun-06
KTFD	Boulder, CO	TFU-22DSC-R 2C200 DC	Jun-06
WCIA	Champaign, IL	TFU-32DSB-R 03	Jun-06
WENY	Elmira, NY	TUA-C4SP-8/28M-1-T	Jun-06
WHYY	Wilmington, DE	TLP-16D SP	Jun-06
WSFJ	Columbus, OH	TFU-23ETT-R 4C140	Jun-06
WSKA	Corning, NY	TUA-C4SP-8/28M-1-T	Jun-06
WYDC	Corning, NY	TUA-C4SP-8/28M-1-T	Jun-06
KLKN	Lincoln, NE	TFU-32DSB-A (C)	Jul-06
KTIN	Fort Dodge, IA	TUA-C4-16/64H-1-R-T	Jul-06
KTRE	Lufkin, TX	TF-8HT DC	Jul-06
WETK	Burlington, VT	TUP-04-10/40H-1-R	Jul-06
WMBD	Peoria, IL	TFU-30GTH-R 6T170 DC	Jul-06
WVVA	Bluefield, WV	TFU-24JTH-R 04	Jul-06
KEPR	Pasco, WA	TLP-8A	Aug-06
KIDK	Idaho Falls, ID	TFU-22DSC-R C170	Aug-06
KTAL	Texarkana, TX	TFU-32DSB-R 03	Aug-06
WDCA	Washington, DC	TUA-04-2/8-1, TUC-05-16/80H-1-B (C)	Aug-06
WFMJ	Youngstown, OH	TFU-27ETT-R 4C150SP DC	Aug-06
WGSA	Baxley, GA	TFU-32DSB-G	Aug-06
WNJS	Camden, NJ	TFU-30GBH-R 06 DC	Aug-06
WTTG	Washington, DC	TUA-04-2/8-1, TUC-05-16/80H-1-B (C)	Aug-06
KAEF	Arcata, CA	TLP-12-R C170	Sep-06
KATV	Little Rock, AR	TFU-30GTH-R 04	Sep-06
KTBY	Anchorage, AK	TFU-14DSB-C (SP)	Sep-06
KYIN	Mason City, IA	TFU-22DSC-R 4P320	Sep-06
WCBS	New York, NY	TUD-C5SP-10/34U-2-B	Sep-06
WNBC	New York, NY	TUD-C5SP-10/34U-2-B	Sep-06
WNJB	New Brunswick, NJ	TUV-32GTH/6HV-R 06/S190	Sep-06
WNJU	Linden, NJ	TUD-C5SP-10/34U-2-B	Sep-06
WNYW	New York, NY	TUD-C5SP-10/34U-2-B	Sep-06
WOAY	Oak Hill, WV	TFU-32DSB-A	Sep-06
WQRF	Rockford, IL	TFU-25JSC-R P210SP	Sep-06
WTVW	Evansville, IN	TFU-29JSC-R T170	Sep-06
KATC	Lafayette, LA	TFU-30GTH-R 04 SP	Oct-06
WFXB	Myrtle Beach, SC	TFU-26GTH-R T180	Oct-06
WPCW	Jeannette, PA	TFU-24GTH/VP-R 06	Oct-06
WSAH	Bridgeport, CT	TUA-C4SP-10/32H-1-R-B, TFU-26JTH-R 04	Oct-06
KLTV	Tyler, TX	TF-12HT-H DC	Nov-06

WJAL	Hagerstown, MD	TLP-16M	Nov-06
KUSM	Bozeman, MT	TFU-16DSB-B	Dec-06
WHIZ	Zanesville, OH	TUF-04-10/40H-1-T	Dec-06
WTVM	Columbus, GA	TFU-32DSB-A-R	Dec-06
WXXV	Gufport, MS	TFU-31JSC T180	Dec-06
KCAU	Sioux City, IA	TFU-32DSB-A-R (C) SP	Jan-07
KAII	Honolulu, HI	THA-P2SP-4H/8H-1-B	Mar-07
KMAU	Honolulu, HI	THA-P2SP-4H/8H-1-B	Mar-07
KMEB	Honolulu, HI	THA-P2SP-4H/8H-1-B	Mar-07
KGMV	Wailuku, HI	TUA-P2SP-6/12H-1-S	Mar-07
KOGG	Wailuku, HI	TUA-P2SP-6/12H-1-S	Mar-07
WBNX	Akron, OH	TFU-30DSC-R P270BNT	Mar-07
WEDH	Hartford, CT	TFU-16DSC-R C170	Mar-07
WUTB	Baltimore, MD	TFU-16DSB-R C170	Mar-07
WVAN	Savannah, GA	TLS-V4	May-07
KIRO	Seattle, WA	TFU-32DSC C164	Jun-07
WBND	South Bend, IN	TLP-8M	Jun-07
WCWW	South Bend, IN	TLP-12A	Jun-07
WFBN	Rockford, IL	TLP-4M	Jun-07
WMYS	South Bend, IN	TLP-12F	Jun-07
WSEE	Erie, PA	TLP-16M	Jun-07
WWME	Chicago, IL	TLP-4M	Jun-07
WYTU	Milwaukee, WI	TLP-8M	Jun-07
KIMT	Mason City, IA	TFU-30GTH-R 04	Aug-07
WHCH	Chicago, IL	TLP-8F-R	Aug-07
WPXX	Memphis, TN	TUA-C2-3/6H-1-SP	Aug-07
	Sao Paulo, Brazil	TUA-04-8/32HSP-2-T	Aug-07
WDSU	New Orleans, LA	TUF-C4SP-10/40U-1-T	Sep-07
WGTV	Atlanta, GA	THA-S4-1H/4HD-1-R-B	Sep-07
WNOL	New Orleans, LA	TUF-C4SP-10/40U-1-T	Sep-07
KARD	West Monroe, LA	TFU-34JSC-R 03	Oct-07
KTFT	Twin Falls, ID	TLP-24A	Oct-07
KUQI	El Paso, TX	TFU-20JSC-R 3P260	Oct-07
WCLP	Chattanooga, TN	TFU-24DSB-B-R	Oct-07
WOFL	Orlando, FL	TUA-C4-10/32MSP-1-S	Oct-07
WOGX	Gainesville, FL	TUA-C4-10/32MSP-1-S	Oct-07
WRBW	Orlando, FL	TUA-C4-10/32MSP-1-S	Oct-07
KBCW	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KBWB	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KCNC	Denver, CO	TUA-C3-12/36U-1-S	Nov-07
KCNS	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KCSM	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KFSF	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07

KMGH	Denver, CO	TUA-C3-12/36U-1-S	Nov-07
KMTD	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KNXV	Phoenix, AZ	TFU-20GTH/VP 04	Nov-07
KPIX	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KQED	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KRON	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KTVD	Denver, CO	TUA-C3-12/36U-1-S	Nov-07
KTVU	San Francisco, CA	TUA-C4SP-12/40U-1-S	Nov-07
KUAT	Tucson, AZ	TUA-04-6/24H-1-R-B	Nov-07
WVIA	Wilkes Barre-Scranton, PA	TLP-8 C 160-R	Nov-07
WXGA	Jacksonville, FL	TF-14HT-DC	Nov-07
KGO	San Francisco, FL	THV-5A7-R C170	Dec-07
KQIN	Davenport, IA	TFU-16DSB-R	Dec-07
WPLG	Miami, FL	THV-8A10/VP P210, TLS-V4	Dec-07
	Sao Paulo, Brazil	TFU-16GTH 04	Dec-07
KCNC	Denver, CO	TUC-C4SP-12/48U-4-T	Jan-08
KFMB	San Diego, CA	THB-C2-4H/8HD-1-R	Jan-08
KTVD	Denver, CO	TUC-C4SP-12/48U-4-T	Jan-08
KUSA	Denver, CO	TUC-C4SP-12/48U-4-T	Jan-08
WFTV	Orlando, FL	TFU-24DSB-E	Jan-08
WYFF	Greenville, SC	TFU-24JSC-R 04	Jan-08
KSNW	Wichita, KS	DL-12	Feb-08
WABW	Albany, GA	THA-P4-1M/4H-1	Feb-08
WHIQ	Huntsville, AL	TFU-22JTH-R 04	Feb-08
WRDQ	Orlando, FL	TFU-24DSB/VP-H (C)	Feb-08
WVAN	Savannah, GA	THA-04-7H/28HD-1	Feb-08
KENS	San Antonio, TX	TFU-32DSB-H (C), TFU-30GBH-R 06	Mar-08
KMOV	St. Louis, MO	TFU-30GTH-R 04, TFU-30GTH-R 03	Mar-08
WACS	Albany, GA	THV-5A8-R C170	Mar-08
WANE	Ft. Wayne, IN	TFU-24DSB-R (C) C200	Mar-08
WCES	Augusta, GA	THB-03-3M/9H-1-R, THA-C1-3L/3H-1	Mar-08
WMBF	Montgomery, AL	TFU-22GTH-R 6T170	Mar-08
WMUM	Macon, GA	TLS-V8	Mar-08
WBPG	Gulf Shores, AL	TLP-24 S 180 SP	Apr-08
WJSP	Columbus, GA	TLP-24C-R (C)	Apr-08
WNAC	Providence, RI	THB-C3SP-1H/3HD-1-R	Apr-08
WTIC	Hartford, CT	TFU-18DSC/VP-R C170	Apr-08
WTXX	Waterbury, CT	TFU-10JTH/VP-R 04	Apr-08
	Porto Alegre, Brazil	THA-C4SP-4H/16H-1	Apr-08
KDLT	Sioux Falls, SD	TFU-36GTH-R 04	May-08
KDSE	Dickinson, ND	TW-9B9-R	May-08
KFDX	Wichita Falls, TX	TFU-34JSC-R 03	May-08
KFME	Fargo, ND	TW-9B13-R	May-08

KFWD	Fort Worth, TX	THV-6A9-R C180	May-08
KODE	Joplin, MO	TFU-34JSC-R 03	May-08
KTXS	Sweetwater, TX	TFU-24DSB-H-R (C)	May-08
WLRN	Miami, FL	TUF-BP4SP-12/48USP-1-T	May-08
WPTV	West Palm Beach, FL	THV-10A12/VP 04	May-08
KFVS	Cape Girardeau, MO	TW-12B12-R	Jun-08
KPRY	Pierre, SD	TFU-32DSB-A	Jun-08
WEDN	Norwich, CT	TLS-V4-R	Jun-08
WEWS	Cleveland, OH	TFU-30GTH/VP-R 06	Jun-08
WFXP	Erie, PA	TFU-24DSB-E	Jun-08
WXYZ	Detroit, MI	TFU-26GTH-R 6C140	Jun-08
KCOS	Phoenix, AZ	TF-12AH	Jul-08
KGCW	Burlington, IA	TFU-22JSC-R C150	Jul-08
KLBY	Colby, KS	TFU-30GTH-R 04	Jul-08
KMCI	Kansas City, MO	TFU-18DSC/VP-R2C230	Jul-08
KPXC	Denver, CO	TUD-C5-14/70H-2-B-R	Jul-08
KSHB	Kansas City, MO	TU-30GTH/VP-R 06 DC, TFU-18DSC/VP-R2C2	Jul-08
KSVI	Billings, MT	TFU-34JSC-R 03	Jul-08
KWTV	Oklahoma City, OK	TF-6HT-H DC SM	Jul-08
KWTX	Waco, TX	THV-12A10-CP-R 04	Jul-08
WDIV	Detroit, MI	TFU-16DSB-M	Jul-08
WSPX	Syracuse, NY	TFU-18GTH-R C200	Jul-08
KAUZ	Wichita Falls, TX	TFU-32DSB-A (C)	Aug-08
KDLV	Sioux Falls, SD	TFU-26GTH-R 04	Aug-08
KHMT	Hardin, MT	TFU-34JSC-R 03	Aug-08
KOTV	Tulsa, OK	TFU-30GBH-R-08, TFU-28DSC-R 04	Aug-08
KPXG	Portland, OR	TUF-04-14/56H-1-T	Aug-08
KSNC	Great Bend, KS	TFU-30GTH-R 04	Aug-08
KTXL	Sacramento, CA	TFU-24ETT/VP-R 3BP250SP	Aug-08
KVEW	Kennewick, WA	TFU-30GTH-R 04	Aug-08
KVIE	Sacramento, CA	THV-5A9/VP-R 04	Aug-08
KXII	Sherman, TX	THV-12A12/CP-R 04, TLS-V4	Aug-08
WLAX	LaCrosse, WI	TFU-22JTH-R T180	Aug-08
WRGB	Schenectady, NY	THB-03-4M/12H-2-R	Aug-08
WSOC	Charlotte, NC	TUA-04-3/12U-1	Aug-08
WVUT	Vincennes, IN	TLP-12C	Aug-08
WWMT	Kalamazoo, MI	TLS-V8-R S170	Aug-08
WXEL	West Palm Beach, FL	TFU-10DSC P230	Aug-08
KEZI	Eugene, OR	THV-10A9/VP-R-C170	Sep-08
KJRH	Tulsa, OK	THV-9A8/CP-R 04	Sep-08
KPRC	Houston, TX	TFU-30DSC/VP-R 04	Sep-08
KRNE	Merriam, NE	TW-12B12-R	Sep-08
WAPT	Jackson, MS	TFU-24DSC-R T170	Sep-08

WCIU	Chicago, IL	TUA-C2-6/12U-1-R	Sep-08
WCPO	Cincinnati, OH	THV-9A10/CP-R3C120	Sep-08
WEUX	Chippewa Falls, WI	TFU-29ETT-R 4C160DC	Sep-08
WGGN	Sandusky, OH	TFU-14GTH/VP-R 4C240	Sep-08
WMDT	Salisbury, MD	TFU-20GTH-R C170 SP	Sep-08
WNEG	Toccoa, GA	TLP-24D-R (C)	Sep-08
WPXI	Pittsburgh, PA	TFU-30DSC-R 04	Sep-08
WTOL	Toledo, OH	THV-6A11-R C170	Sep-08
WVIA	Scranton, PA	TFU-28GTH/V-R 04	Sep-08
	Sao Paulo, Brazil	TUM30-05-8/40H-1-T/TUM30-05-4/20H-1-B	Sep-08
KBTX	Bryan, TX	TFU-30GTH-R 6T140	Oct-08
KCSG	Cedar City, UT	TLP-8M	Oct-08
KJTL	Wichita Falls, TX	TFU-29JSC-R 3T180	Oct-08
KMID	Midland, TX	TFU-31JTH-R04	Oct-08
WAKA	Montgomery, AL	TFU-30GTH-R 04	Oct-08
WCMW	Manistee, MI	TFU-18JSC-R C170	Oct-08
WFFT	Fort Wayne, IN	TFU-24JSC-R T120	Oct-08
WGPT	Oakland, MD	TLP-16M (C)	Oct-08
WHLT	Hattiesbury, MS	TFU-26GTH 04	Oct-08
WIPR	San Juan, PR	TFU-26JSC-R CT150SP	Oct-08
WKYC	Cleveland, OH	TFU-24DSC-R 4C150/TFU-20EBT-R4C150	Oct-08
WNVC	Fairfax, VA	TFU-26GTH-R 04	Oct-08
WVTM	Birmingham, AL	THV-9A13/VP-R 04	Oct-08
WWDP	Norwell, MA	THV-5A10-R 04	Oct-08
KSAN	San Angelo, TX	TFU-34JSC-R 03	Nov-08
WDEF	Chattanooga, TN	TLS-V4	Nov-08
WDHN	Dothan, AL	TFU-34JSC-R 03	Nov-08
WHIO	Dayton, OH	TFU-30GTH-R 4C130	Nov-08
WIWB	Suring, WI	TFU-16DSB-E-R	Nov-08
WJHL	Johnson City, TN	THV-9A11-R 4C130	Nov-08
WMAR	Baltimore, MD	TFU-26GTH/VP-R 6C130	Nov-08
WMBB	Panama City, FL	THV-10A13 C170	Nov-08
WPCW	Jeannette, PA	TLS-V8-R S170	Nov-08
WSAW	Wausau, WI	TFU-8DSB-M-CP-R	Nov-08
WVIZ	Cleveland, OH	TFU-10GTH-R C170	Nov-08
	Sorocaba, Brazil	TUM-25-04-1/4H-1-N	Nov-08
KBRR	Thief River Falls, MN	THV-6A10-R 04 SM	Dec-08
KICU	San Diego, CA	TFU-30DSC/VP-R C170	Dec-08
KLST	San Angelo, TX	TW-7B11-R	Dec-08
KUSM	Bozeman, MT	TLP-16A/VP-R	Dec-08
WFTS	Tampa, FL	TFU-26GTH/VP 6T140	Dec-08
WKMG	Orlando, FL	TFU-20ETT-R 4C220	Dec-08
WMTJ	Fajardo, PR	TFU-16DSC-R S300	Dec-08

WPBF	West Palm Beach, FL	TFU-22GTH/VP-R P260BNT	Dec-08
KHET	Honolulu, HI	THA-BP3SP-1H/3HD-1	Jan-09
KSNF	Joplin, MO	TFU-31JTH-R 04	Jan-09
WDIV	Detroit, MI	TFU-27ETT/VP-R 4C130	Jan-09
WEDU	Tampa, FL	THV-11A13/CP-04 SP	Jan-09
WFXV	Utica, NY	TFU-26DSC-R P260SP	Jan-09
WHAG	Hagerstown, MD	TFU-26JTH-R 4C130	Jan-09
WJET	Erie, PA	TFU-29JTH-R C180 SP	Jan-09
WTWV	Memphis, TN	TFU-30GTH/VP-R 6T130	Jan-09
WWSB	Sarasota, FL	TFU-24JTH/VP 04	Jan-09
KBTV	Port Arthur, TX	TFU-31JTH-R 04	Feb-09
KCWX	Fredericksburg, TX	TF-6MT	Feb-09
KMID	Midland, TX	TFU-34JSC-R 03	Feb-09
KOCT	Carlsbad, NM	TLP-24A	Feb-09
KWBF	Little Rock, AR	TFU-34JSC-R 03	Feb-09
KWCH	Hutchinson, KS	TW-12B12-R	Feb-09
WABW	Pelham, GA	TF-4MT-H	Feb-09
WOAI	San Antonio, TX	TFU-30GTH-R 04, TFU-DSB-H (C)	Feb-09
WPEC	West Palm Beach, FL	THV-6A13/VP-R BP240	Feb-09
WTLV	Jacksonville, FL	THB-C3SP-3H/6HD1H-1-T	Feb-09
WYTV	Youngstown, OH	TFU-21JTH-R 4C300	Feb-09
KJRH	Tulsa, OK	TLS-V4	Mar-09
WCIQ	Mt. Cheaha, AL	TW-7B7-R	Mar-09
WDIQ	Dozier, AL	TW-9B10-R	Mar-09
WFXT	Boston, MA	TFU-19ETT/VP-R 4C190	Mar-09
WSB	Atlanta, GA	TFU-30GTH-R 04	Mar-09
WYFF	Greenville, SC	TFU-26GTH-R 04	Mar-09
KLCS	Los Angeles, CA	TUF-C4SP-10/40U-1-T	Apr-09
KPXC	Denver, CO	TUA-C4SP-8/26U-1-R-S	Apr-09
KXLH	Helena, MT	TLS-V4	Apr-09
WITI	Milwaukee, WI	TFU-23ETT/VP-R 4C160	Apr-09
WJAR	Providence, RI	TFU-24ETT/VP-R 4C160	Apr-09
WJZ	Baltimore, MD	THV-9A13/VP-R C150SP	Apr-09
WMUR	Manchester, NH	TW-6B9-R/TLS-V4-R	Apr-09
WPTD	Dayton, OH	TFU-14GTH/VP-R 04	Apr-09
KBCW	San Francisco, CA	TFU-19JSC/VP-R CT 150	May-09
KGO	San Francisco, CA	TCL-6A7 (S)	May-09
WDRB	Louisville, KY	TFU-32GTH-R 06 TC	May-09
WSVN	Miami, FL	THV-10A7/VP P210/TLS-V4-R	May-09
KBJR	Duluth, MN	TUA-04-10/40H-1-R-T	Jun-09
KBWB	San Francisco, CA	TFU-30DSC/VP-R 4C190	Jun-09
KPIX	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jun-09
KRON	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jun-09

KTVU	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jun-09
KUTP	Phoenix, AZ	TFU-28DSC-R CT150	Jun-09
WBRC	Birmingham, AL	TFU-28GTH/VP-R 06	Jun-09
WCAU	Philadelphia, PA	TFU-24ETT/VP-R 06	Jun-09
WRJM	Troy, AL	TLP-24C	Jun-09
WSCV	Fort Lauderdale, FL	TFU-24ETT/VP-R 4C160SP	Jun-09
WSMH	Flint, MI	TFU-17JTH/VP-R S180	Jun-09
WTVC	Chattanooga, TN	THV-5A9/VP-R C140/TLS-V4-R	Jun-09
WUVP	Vineland, NJ	TFU-22ETT/VP-R P210	Jun-09
WYBE	Philadelphia, PA	TFU-24EBT/VP-R 8T 160SP	Jun-09
KCNS	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jul-09
KCSM	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jul-09
KMPT	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jul-09
KQED	San Francisco, CA	TUM-C5SP-14/60H-2-T-R	Jul-09
KRMA	Denver, CO	TFU-332DSC/VP-R C190	Jul-09
WENH	Durham, NH	THV-10A11/VP-R 4C130	Jul-09
WNJU	New York, NY	TFU-15JSC/VP-R CT 160	Jul-09
WYDO	Greenville, NC	TFU-16DSB-M/VP	Jul-09
KFSF	San Francisco, CA	TFU-26DSC/VP-R P190	Aug-09
KVVK	Kennewick, WA	TLP-8A	Aug-09
KWGN	Denver, CO	TFU-30GTH/VP-R 06	Aug-09
WSPA	Spartansburg, SC	THV-10A7/VP-R 04 / TLS-V4-R	Aug-09
WSTR	Cincinnati, OH	TFU-24GTH/CP-R 06	Aug-09
WUNM	Jacksonville, NC	TFU-14DSC/VP-R P230	Aug-09
WXIN	Indianapolis, IN	TUM-20-04-12/48H-1-R-T	Aug-09
WXOW	LaCrosse, WI	TLP-8B	Aug-09
KSNF	Joplin, MO	TFU-31JTH-R 04	Oct-09
KVEA	Corona, CA	TFU-20ETT/VP-R 4C160	Oct-09
KCDO	Sterling, CO	TFU-29JTH-R 04	Oct-09
KNXV	Phoenix, AZ	TFU-13JSC 03	Oct-09
WLBT	Jackson, MS	TFU-33JTH-R 04	Nov-09
WOI	Ames, IA	DL-8	Nov-09
WSWP	Grandview, WV	THV-6A10-R 3C140	Nov-09
WVPN	Aurora, IL	TLP-8A	Nov-09
WHBF	Rock Island, IL	DL-8	Nov-09
MTVA	New York, NY	TUM50-C1-4/4H-1-S	Nov-09
WCIU-DT	Chicago IL	TFU-10DSC/VP-R CT170 + mnts	Dec-09
WKBD-DT	Southfield ,MI	TLP-24H - Bottom Section Only	Dec-09
KWSE-DT	Fargo, ND	TW-12B11-R	Feb-10
W29DJ	Chicago IL	TLP-24M + std mnts	Mar-10
52 Mogi	Rio de Janeiro Brazil	TLP-8B/VP (no mnts)	Mar-10
KVEA-DT	Mount Wilson , CA	TFU-20ETT/VP-R 4C160 + wed cake	Mar-10
KOCO-DT	Oklahoma City, OK	THV-12A7/VP-RO4 + wed cake + bury	Mar-10

WOTV-DT	Grand Rapids, MI	TFU-12DSB-A-R + std mnts	Mar-10
28 Resende	RESENDE, Brazil	TLP-8A/VP-R (no mnts)	Mar-10
29 Redonda	Redonda , Brazil	TLP-8A/VP-R (no mnts)	Apr-10
K63EN	Yuma , AZ	THA-C1-5/5-1-S (no mnts)	Apr-10
WFGX-DT	Pensacola, FL	TFU-29ETT/VP-R 4C170	May-10
WFNA-DT	Spanish Fort, AL	TFU-30DSC/VP-R CT170 + mnts	May-10
WSYX-DT	Columbus OH	TFU-12DSB-H-R + std mnts	May-10
WTTE-DT	Columbus, OH	TFU-12DSB-H-R + std mnts	Jun-10
KDFW-DT	Dallas, TX	TFU10DSC/VP-R-4C150 DC + mnts	Jun-10
KCTV-DT	Kansas City, MO	TFU-33JTH/VP-R O6 + bury	May-10
CTV	Montreal, CA	TF-10HT-DC-2-H SP	Jun-10
WSYX-DT	Columbus, OH	TFU-30GTH/VP-R 06 + wed cake	Jun-10
WVTV-DT	Milwaukee WI	TFU-17JSC/VP-R SP 4C170 + mnts	Jun-10
WMAH-DT	Perkinston, MS	TFU-20JTH-R S220	Jun-10
KHON-DT	Honolulu, HI	TLS-V8/VP-R S170 + mnts	Jun-10
WLPB-DT	Baton Rouge, LA	TFU-24JTH-R C190	Jun-10
WJAN	Hialeah Gardens, FL	DL-12 + cstm mnts	Jul-10
WTTA-DT	Riverview FL	TFU-34JTH/VP-R O4SP	Jul-10
OMVC	Parker, FL	TLP-8M + cstm mnts	Jul-10
K50LL	San Diego, CA	TLP-8J/VP	Jul-10
WOFL-DT	Christmas FL	TFU-26JTH/VP-R O6	Aug-10
KXTX-DT/KXAS-DT	Cedar Hill, TX	TUA-C3-6/18H-1-R-DC SM	Aug-10
TV Azteca	Mexico City, MX	TFU-12DSB-B + std mnts	Aug-10
WISN-DT	Milwaukee, WI	TFU-31ETT/VP-R 4C160	Sep-10
WABI-DT	Bangor, ME	THV-9A13/CP-RO4 +BURY	Sep-10
WMSN-DT	Madison, WI	TFU-30GBH/VP-R O8	Sep-10
KARE-DT	Edina, MN	TLS-V8/VP-R +Custom mnts	Sep-10
KSTP-DT/WCCO-DT	Edina, MN	TUM20-C4SP-14/50-1-R-S+ MNTS	Sep-10
WKAR-DT (Aux)	East Lansing, MI	TLP-16B+std mnts	Sep-10
WLOS-DT	Asheville, NC	THV-6A13/CP-R C150	Sep-10
WCPO-DT	Cincinnati, OH	TFU-36GTH/VP-RO6	Oct-10
WCAU-DT	Philadelphia, PA	TFU-24JTH/VP-RO6	Oct-10
WHNS	Greenville, SC	DLP-8D	Oct-10
WWTO-DT	Ottawa, IL	THB-C2SP-3/9HD-R-1	Oct-10
WKAQ-DT	San Juan, PR	TFU-24ETT/VP-R	Nov-10
WPTV-DT (Aux)	Lake Worth, FL	TLS-V8/VP-R	Nov-10
KCKA	Chehalis, WA	TLP-24H-R	Nov-10
KBTV	Roseville, CA	DLP-8MR	Nov-10
KCBS/KNBC	Glendale, CA	TUA-C2-8/16M-1	Nov-10
KTVT/KTXA	Cedar Hill, TX	TUM30-04-14/56H-2-R-T	Nov-10
WTVD-DT (main)	Durham, NC	THV-9A11/CP-R O4	Dec-10
WTVD-DT (aux)	Durham, NC	TLS-V8/VP-R	Dec-10
44 Fredericton	Fredricton, CN	TLP-16M/VP	Dec-10

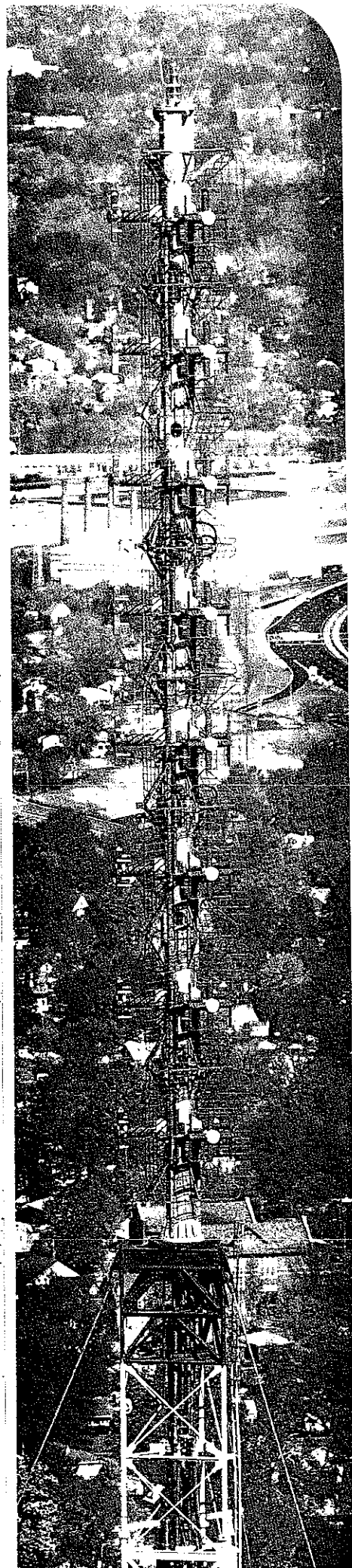
42 Saskatoon	Saskatoon, CN	TLP-16B/VP	Dec-10
WTJX	St.. Thomas, VI	TLP-8M	Dec-10
WRDQ/WFTV	Orlando, FL	TUM20-O4SP-14/56H-2-R-T	Dec-10
WUNW	Candler , NC	2 x TFU-10DSB-B-R +std mnts	Jan-11
WKAR-DT (MAIN)	East Lansing , MI	TFU-23ETT/VP-R C170	Feb-11
WLS	Chicago,IL	TFU-19ETT/VP-R S140	Feb-11
KDKA	Kent City MI	TFU-16DSB-A/VP-R+cstm mnts	Mar-11
WCTE	Cookeville, TN	TFU-24JTH-R O4	Mar-11
WRCB	Chattanooga TN	DCBR-C3SP-4H/10H-1 +MAST+BURY	Mar-11
CKCW	Charlottetown CN	THV-8A8/VP-R S200	Mar-11
WMEU	Chicago, IL	TLP-4M/VP + CSTM MNTS	Apr-11
49 El Salvador	El Salvador	TUA C2-6/12M + STD MNTS	Apr-11
CKAL	Lethbridge CN	TLP-16M	Apr-11
CFCN	Lethbridge CN	THV-12A-13VP-R2P174	May-11
WUNP	Littleton NC	TFU-15JTH/VP-RO4	May-11
W36DO	Kenilworth, NJ	DLP8E	May-11
36MAKO	Alvarado, TX	DLP-8B	May-11

Innovations for a Wireless World™

((Performance • Quality • Relationships))

Dielectric®

AN SPX DIVISION

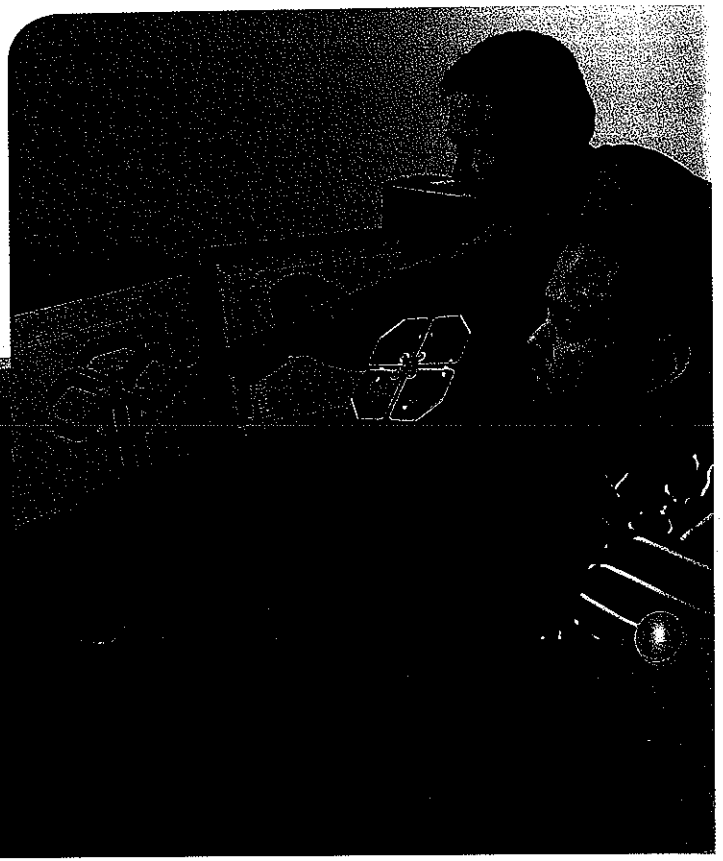


Why Dielectric

Performance, Quality, Relationships

Since 1942, Dielectric Communications has been on the leading edge of broadcast system design, development and installation. We consider ourselves to be world class designers and manufacturers of complete broadcast systems from the transmitter output to the tower top antennas and everything in between. We are now putting our considerable RF expertise into development, design and manufacture of high-performance products for MobileMedia, Broadband Wireless and Cell-Based Mobile communication applications.

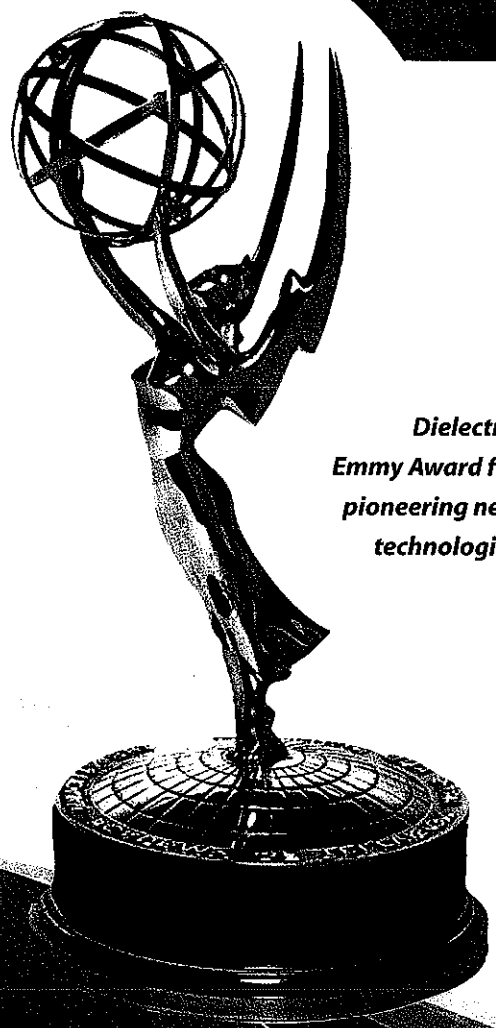
We build quality and reliability into every product and service that carries the Dielectric logo. We pride ourselves in understanding your needs and we are tirelessly pursuing the development of products that will deliver your content to a larger audience with the strongest signal. Dielectric is confident in our ability to deliver your message to the world.



10 station analog and digital FMVee master antenna, St. Louis, Missouri

A Culture of Innovation

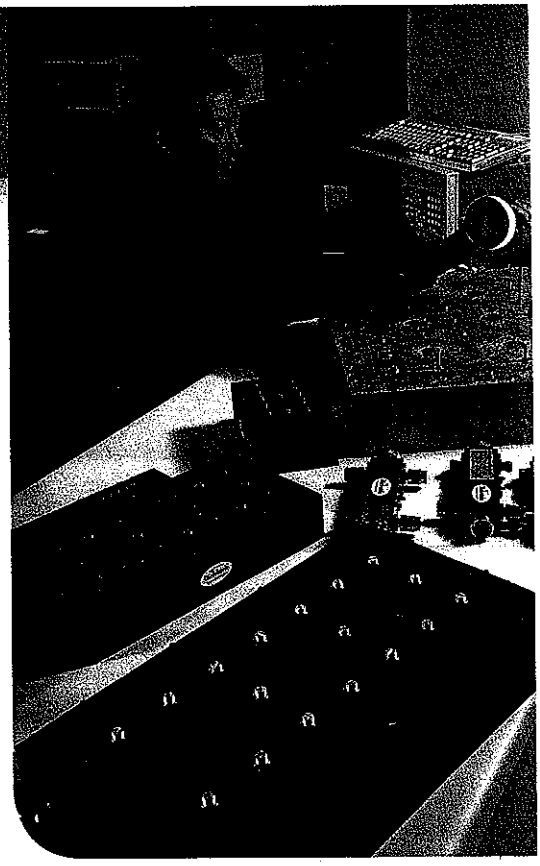
- 87 RF Patents
- 600 years of combined RF Engineering Experience on Staff
- More than 6000 TV and FM Antennas installed
- 2 Emmys for technical innovation
- 4 NAB Pick hits
- 2 SBE Awards
- 5 SPX Inventor Awards



Dielectric Emmy Award for pioneering new technologies

A Tradition of Innovation

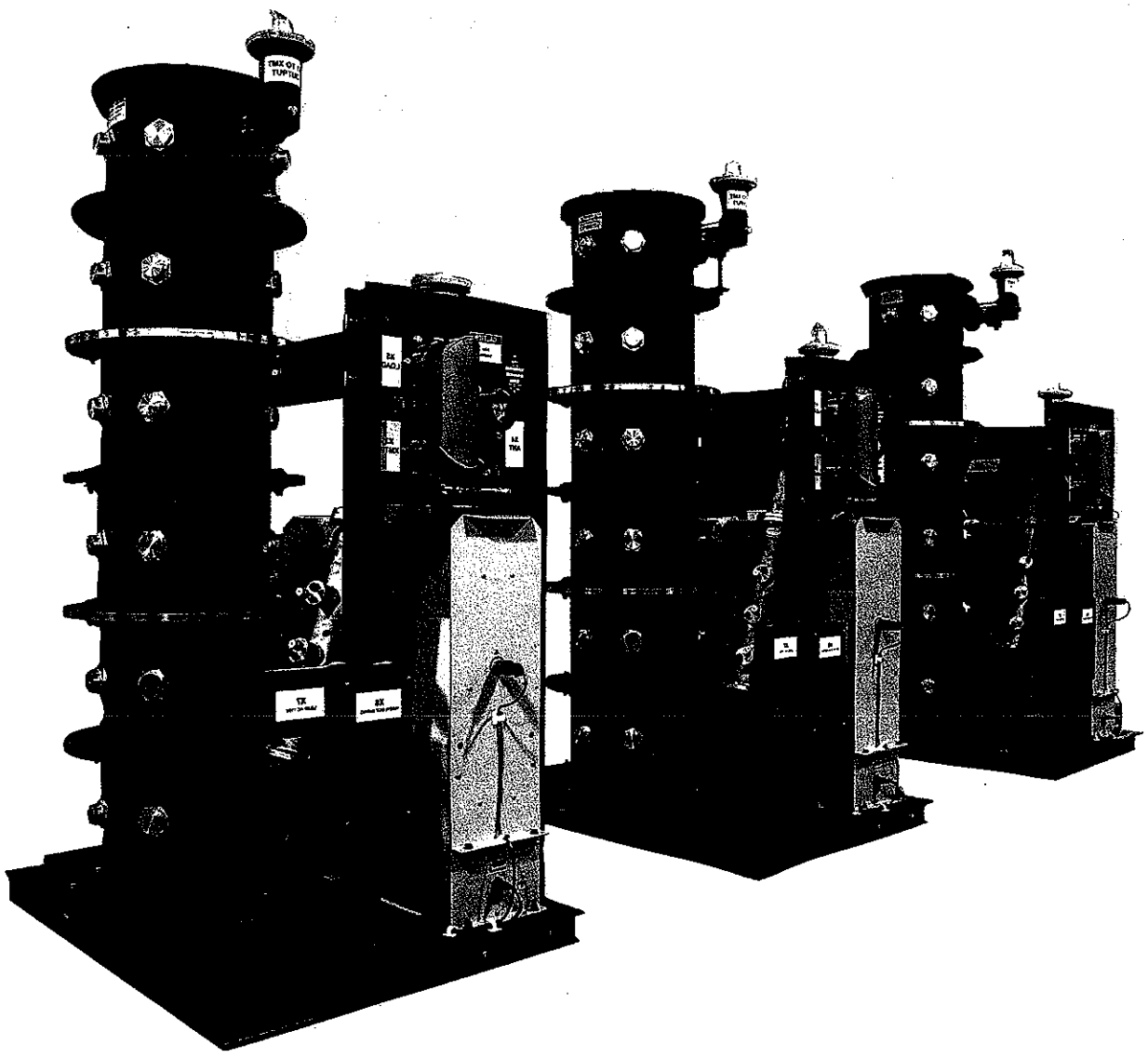
65 Years of Leading Innovation in Passive RF Technologies around the world

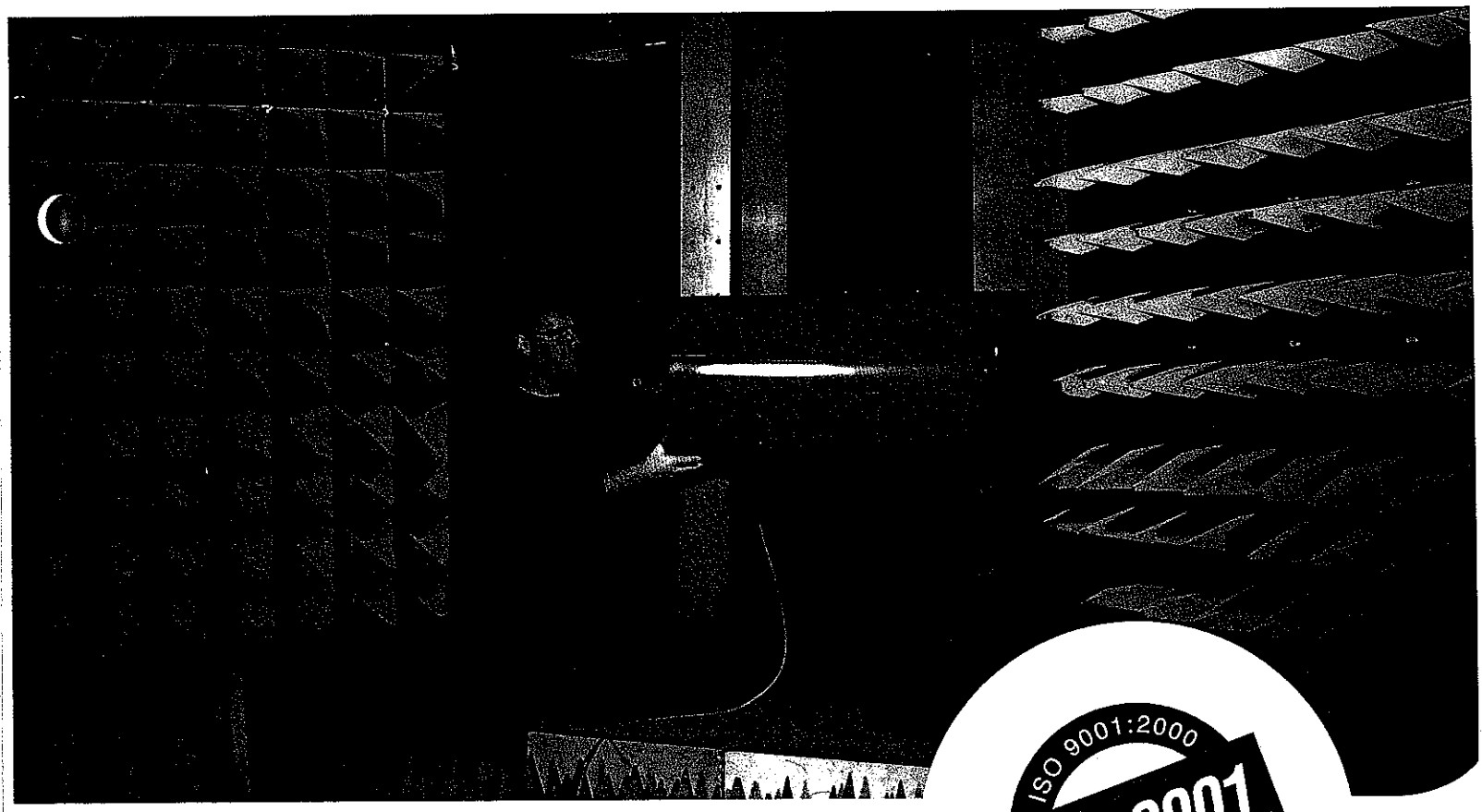


Performance

Redefining Performance and Reliability

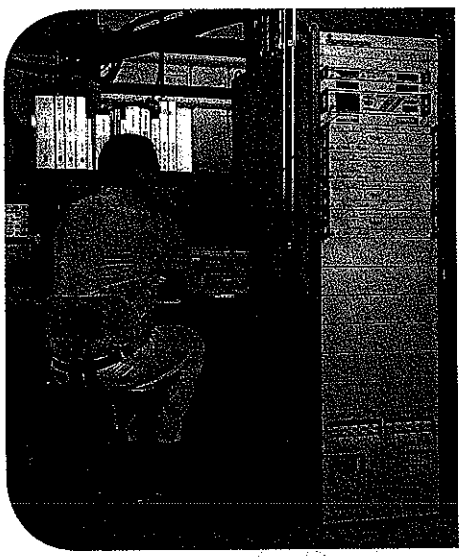
- High performance filter for WiMax deployment in Asia that delivers improved data speeds and coverage
- Dielectric's TUV array with CAT (Common Aperture Technology). CAT allows for the transmission of both VHF and UHF signals from the same aperture
- Rack mountable, stringent mask filters for Mobile TV broadcast that deliver unprecedented performance in Q value and insertion loss
- Dielectric's RF Scout XLT Monitoring system introduced

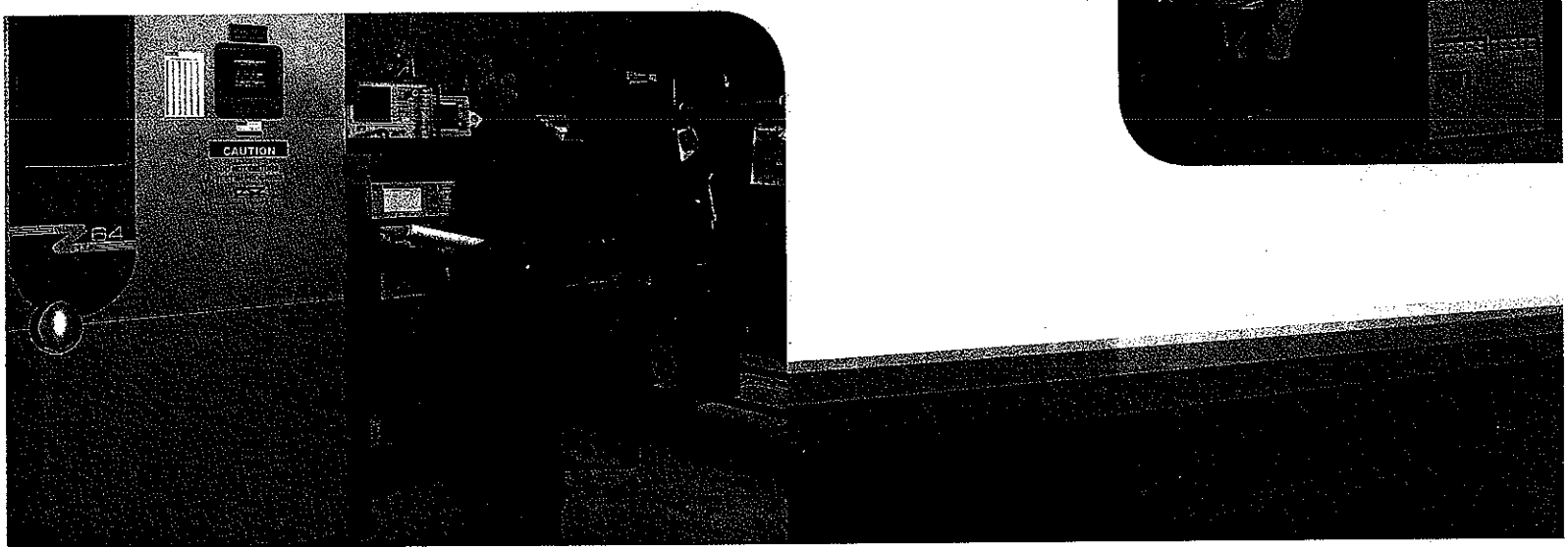


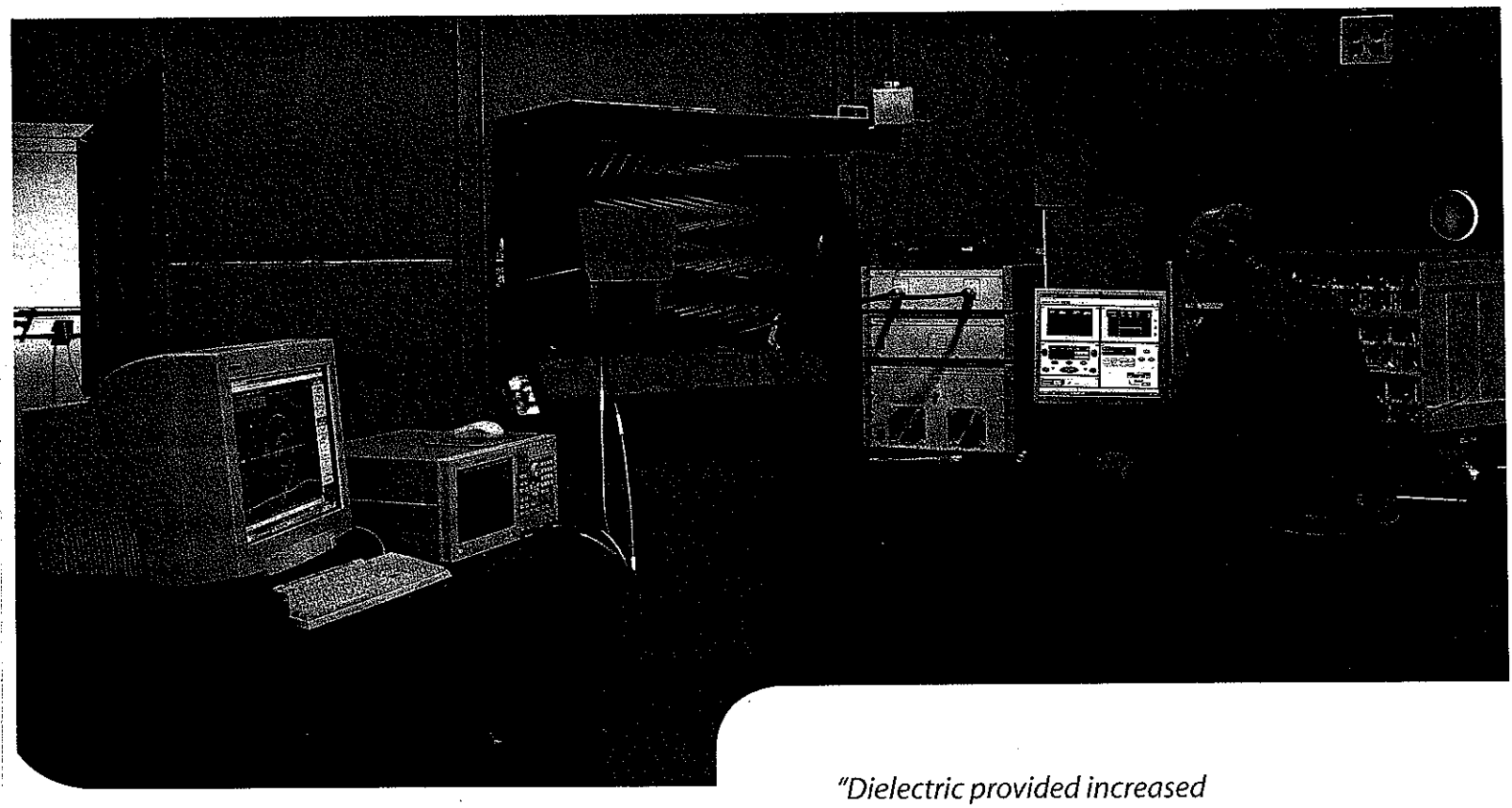


Quality

Our employees take great pride in their work. From concept through installation, the quality will be as clear to you as the signal that we help you transmit. It is simply the result of 65 years of experience in designing and producing robust designs that are second to none. And the stamp of approval comes with our ISO 9001 certification.







Relationships

Commitment & Caring

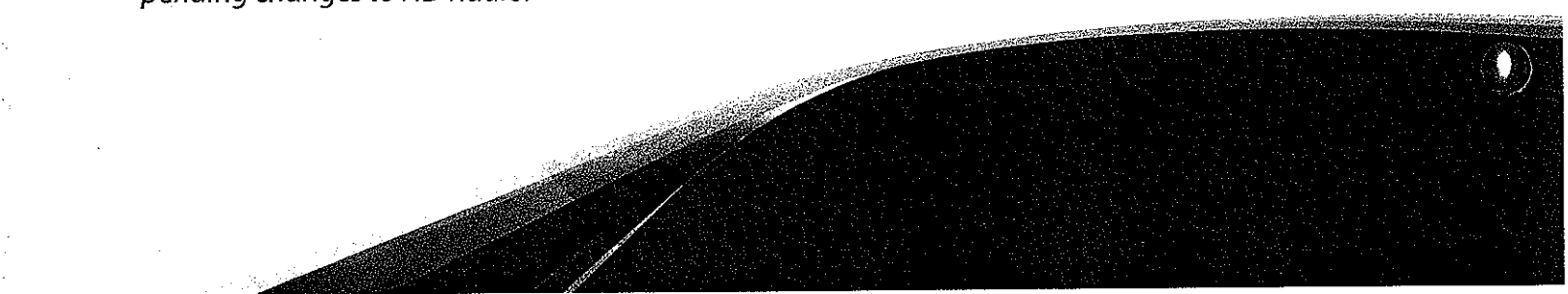
It's easy to shine when everything is running smoothly… at Dielectric we take pride in shining during difficult circumstances. In the recent past, there have been a number of tragedies affecting broadcasters from coast to coast. Dielectric has stepped in and worked around the clock to get the broadcasters back on the air. We understand that every minute of off-time air is lost revenue.

"Great Conference—the topics covered were timely and dealt in depth (with) the pending changes to HD Radio."

"Dielectric provided increased insight into the various trade-offs between the different options available when going from -20 to -10 IBOC."

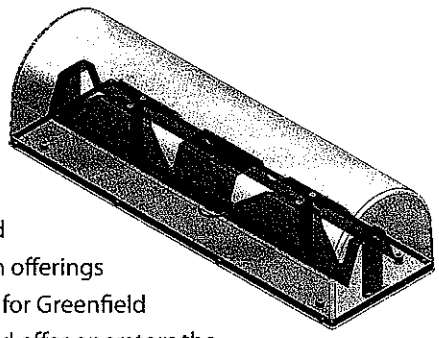
Leadership in FM Radio

Dielectric is the proud sponsor of the annual FM Executive Conference held here in Maine as a forum to communicate product improvements and exchange ideas with some of the most influential engineers in the FM radio segment of the industry. It is just another way of staying in touch with the needs of customers and offering cutting edge solutions.



Markets Served Around the World

Mobile Wireless



Dielectric's entrance into the Mobile Wireless space is offering network operators unprecedented advantages in CAPEX and OPEX savings. Our system offerings are especially well suited for Greenfield network deployments and offer operators the economics to reach rural populations that to this point have been unattainable.

FM Radio Products

Whether in a small or large market, serious broadcasters invest a lot of time, money and effort to obtain the largest audience and command the best price for advertising space. At the end of the day your product is broadcast through one point - your antenna. Dielectric is recognized around the world as the premier manufacturer for Broadcasters who refuse to compromise on their signal. Dielectric filters, switches, power monitoring systems, transmission line, pattern testing facilities and antennas are recognized as the standard of performance and reliability. Get the most out of your signal with Dielectric.

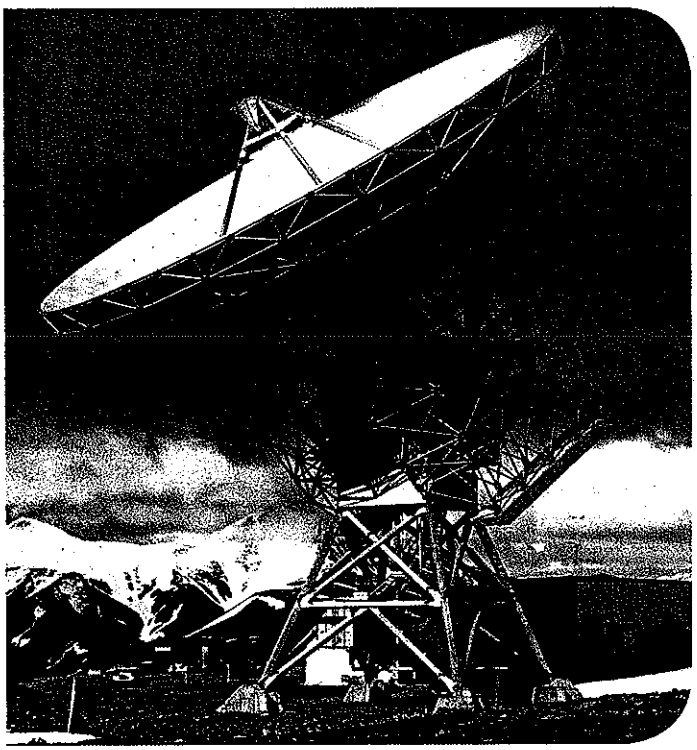
Cost Effective Solutions for MobileMedia™

Dielectric is a pioneer in product development and actual implementation of Broadcast Systems for mobile devices. Our innovative designs are specifically tailored to the spectrum that is becoming available around the world for Mobile TV and are compatible with MediaFlo™, DVB-H and the forthcoming MPH Services. This product portfolio includes slotted coaxial and panel antennas with horizontal, vertical, elliptical and circular polarization. The antennas are compact, lightweight and offer easy mounting. Our RF Systems offer very high performance and many of our solutions are now rack mountable. Customized azimuth patterns, elevation patterns, gain, beam tilt and null fill are options available with every antenna system solution.

Television Broadcast

Dielectric is a single source for all RF equipment, offering the most complete line of television antenna products of any manufacturer in the world. This single layer of responsibility greatly reduces possible errors in the interface between the transmitter, RF system, transmission line and finally antenna.

Dielectric's Global Presence



Dielectric—chosen for waveguide run at the EISCAT Transmitting System, Svalbard, Norway

Dielectric Communications is one of the oldest and most respected passive RF companies in the world. We have installations in 96 countries around the world. Our customers are the largest, most successful broadcasters around the globe. Dielectric has provided components and/or complete systems for EISCAT, Master FM antennas in Mexico City, UHF TV antennas in São Paolo, and built a U.S. wide network to deliver mobile TV. Dielectric Communications is the right choice for your most stringent broadcast needs. We offer reliable solutions using both standard or customized equipment that delivers superior performance. Our products connect people around the globe—let us be your link to new opportunities.

Contact Us

Call us today about your broadcast equipment needs at **207.655.8100** or email us at **dcsales@spx.com**

Dielectric®

AN SPX DIVISION

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Email: dcsales@spx.com
www.dielectric.com

4/09

PERRY JOHNSON REGISTRARS, INC.

Certificate of Registration

Perry Johnson Registrars, Inc., has assessed the Quality Management System of:

Dielectric Communications, a Division of SPX Corporation
22 Tower Road, Raymond, ME 04071 United States

(Hereinafter called the Organization) and hereby declares that Organization is in conformance with:

ISO 9001:2008

This Registration is in respect to the following scope of supply:

Design and Manufacture of RF Broadcast and RF Custom Products for Military and Scientific Applications and Related Test Equipment

Such products shall be manufactured by the Organization at, or such processes or services shall be offered at or from, only the address given above. This Registration is granted subject to the system rules governing the Registration referred to above, and the Organization hereby covenants with the Assessment body duty to observe and comply with the said rules.

For PJR:

Terry Boboige

Terry Boboige, President
Perry Johnson Registrars, Inc. (PJR)
26555 Evergreen, Suite 1340
Southfield, Michigan 48076
(248) 358-3388

UKAS QUALITY MANAGEMENT 105

ANAB ACCREDITED

PERRY JOHNSON REGISTRARS, INC.

The validity of this certificate is mandated through ongoing surveillance.

Effective Date:	Revision Date:	Expiration Date:	Certificate No:
March 10, 2009	August 12, 2009	March 9, 2012	C2009-00683-R1